

H1845

0058618

Daynes

ORIGINAL

SDR #: F02-001

Revision #: 0

Date Initiated: 7/29/02

**SAMPLE DISPOSITION RECORD**

SAF: F02-009

OU: N/A

Project ID: CPP 200 Area

Task ID: 1

Sampling Event: ModuTank Monitoring

Laboratory: Eberline

Task Manager: CS Wright

Sampling Information:

Number of Samples: 1

ID Numbers: B153H3

Matrix: WATER

Collection Date: 7/25/02

Issue Background:

Class: ☒ Project Data Use ☐ General Laboratory ☐ Validation Direction ☐ Sample Management Direction

Type: Chain of Custody Problem

Description: Chain of Custody Missing Sample Date/Time

Disposition:

Description: The sample date and time was not recorded on the chain of custody for the listed sample. Based on sampling information listed in the samplers' logbook, the correct sample date and time should be "7/25/02 10:55 AM".

Justification: Sampling date/times are required to be entered on the chain of custody. The Groundwater Protection Program will evaluate the impact of the chain of custody issue on data use.

Approval Signatures:

SJ Trent

Project Coordinator (Print/Sign Name)

8/20/02

Date

CS Wright

Task Manager (Print/Sign Name)

8/21/02

Date

**RECEIVED**  
JAN 29 2003

**EDMC**



6 September 2002

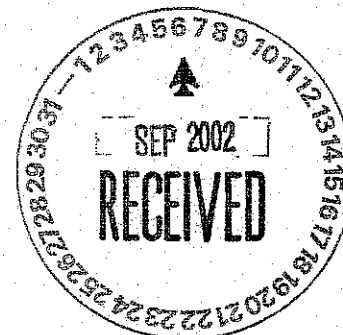
Mr. Steve Trent  
Fluor Hanford Inc.  
825 Jadwin Ave.  
Richland, WA 99352

**Subject: Contract No. 630**  
**Analytical Data Package**

Dear Mr. Trent:

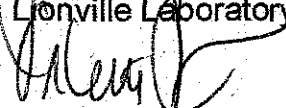
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0207L262
SDG #	H1845
SAF #	F02-009
Date Received	7-26-02
# Samples	7
Matrix	Water
Volatiles	X
Semivolatiles	X
Pest/PCB	X
Herbicide	X
GRO	
Metals	X
Inorganics	



The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,  
Lionville Laboratory Incorporated

  
Orlette S. Johnson  
Project Manager

Lionville Laboratory, Inc.  
VOA ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

RFW LOT # :0207L262

CLIENT ID	RFW #	MTX	PREP #	COLLECTN	DATE REC	EXT/PREP	ANALYSIS
B153F8	001	W	02LVH324	07/25/02	07/26/02	N/A	08/07/02
B153F9	002	W	02LVH324	07/25/02	07/26/02	N/A	08/07/02
B153H0	003	W	02LVH324	07/25/02	07/26/02	N/A	08/07/02
B153H1	004	W	02LVH324	07/25/02	07/26/02	N/A	08/07/02
B153H2	005	W	02LVH324	07/25/02	07/26/02	N/A	08/07/02
B153H3	006	W	02LVH324	07/25/02	07/26/02	N/A	08/07/02
B153H4	007	W	02LVH327	07/25/02	07/26/02	N/A	08/08/02
B153H4	007 MS	W	02LVH327	07/25/02	07/26/02	N/A	08/08/02
B153H4	007 MSD	W	02LVH327	07/25/02	07/26/02	N/A	08/08/02

LAB QC:

VBLKHE	MB1	W	02LVH324	N/A	N/A	N/A	08/07/02
VBLKHE	MB1 BS	W	02LVH324	N/A	N/A	N/A	08/07/02
VBLKJS	MB1	W	02LVH327	N/A	N/A	N/A	08/08/02
VBLKJS	MB1 BS	W	02LVH327	N/A	N/A	N/A	08/08/02





Client: TNU-HANFORD F02-009  
LVL #: 0207L262  
SDG/SAF #: H1845/F02-009

W.O. #: 11343-606-001-9999-00  
Date Received: 07-26-2002

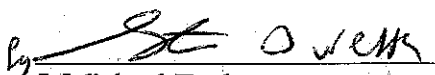
## GC/MS VOLATILE

Seven (7) water samples were collected on 07-25-2002.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260B for TCL volatile target compounds on 08-07,08-2002.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. Eight (8) of thirty-nine (39) surrogate recoveries were outside EPA QC limits. All out of criteria surrogate recoveries of Bromofluorobenzene were biased slightly low; however, there was no significant impact on the data. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. Internal standard area and retention time criteria were met.
8. Manual integrations are performed according to OP L-QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
9. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

  
J. Michael Taylor  
President  
Lionville Laboratory Incorporated

08-29-02  
Date

son\group\data\voa\tnu-hanford\0207-262.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 28 pages.

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0207180

Initiator: Reuchlak  
Date: 8/10/02  
Client: TM

Batch: 02071262  
Samples: Qell + GC  
Method: SW846/MCAWW/CLP/

Parameter: 0624  
Matrix: Water  
Prep Batch: —

## 1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other —

## b. General Discrepancy

☐ Missing Sample/Extract\* ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample\* ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note \*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: —

## c. Problem (Include all relevant specific results; attach data if necessary)

Recovery is low in samples and associated GC (including blanks) all within 70-80% - current in house limit 8% (lower limit). would like to report and narrate.

## 2. Known or Probable Causes(s)

Currently reviewing in house control chart limits TE Deshlor

## 3. Discussion and Proposed Action

Other Description:

☐ Re-log  
☐ Entire Batch  
☐ Following Samples: —  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to —  
☐ Place On/Take Off Hold (circle)

Reviewing control charts  
2002 control chart

69-123  
Discuss with QA about changing limits

## 4. Project Manager Instructions...signature/date:

☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☐ Include in Case Narrative  
☐ Client Contacted:  
Date/Person —  
☐ Add  
☐ Cancel

## 5. Final Action...signature/date:

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)  
☒ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

## Route Distribution of Completed SDR

## Route Distribution of Completed SDR

☒ X Initiator  
☒ X Lab General Manager: M. Taylor  
☒ X Project Mgr: Stone/Johnson/Haslett  
☒ X Technical Mgr: Wesson/Daniels  
☒ X QA (file): Alberts  
☐ Data Management: Feldman  
☐ Sample Prep: Beegle/Kiger

☐ Metals: Beegle  
☐ Inorganic: Perrone  
☐ GC/LC: Kiger  
☐ MS: Rychlak/Layman  
☐ Log-in: Melnic  
☐ Admin: Soos  
☐ Other: —

## GLOSSARY OF VOA DATA

### DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.

## GLOSSARY OF VOA DATA

### ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

## TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quantitation modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quantitation modifications:

- MP - Missed Peak: manually added peak not found by automatic quantitation program.
- PA - Peak Assignment: quantitation report was changed to reflect correct peak assignment.
- RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



Report Date: 08/27/02 12:00

Client: TNUHANFORD F02-009 H1845 Work Order: 11343606001 Page: 1a

\*= Outside of EPA CLP QC limits.

Cust ID: B153F8 B153F9 B153H0 B153H1 B153H2 B153H3

RFW#: 001 002 003 004 005 006

Chlorobenzene	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

\*= Outside of EPA CLP QC limits.

## Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 08/27/02 12:00

RFW Batch Number: 0207L262

Client: TNUHANFORD F02-009 H1845 Work Order: 11343606001 Page: 2a

Cust ID:		B153H4	B153H4	B153H4	VBLKHE	VBLKHE BS	VBLKJS
Sample		RFW#: 007	007 MS	007 MSD	02LVH324-MB1	02LVH324-MB1	02LVH327-MB1
Information		Matrix: WATER	WATER	WATER	WATER	WATER	WATER
		D.F.: 1.00	1.00	1.00	1.00	1.00	1.00
		Units: ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Toluene-d8		101 %	99 %	102 %	99 %	95 %	103 %
Surrogate	Bromofluorobenzene	81 %	80 * %	82 %	78 * %	82 %	81 %
Recovery	1,2-Dichloroethane-d4	87 %	90 %	94 %	84 %	96 %	88 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		4 J	6	8	5 U	5 U	5 U
Acetone		10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	93 %	96 %	5 U	70 %	5 U
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	101 %	106 %	5 U	94 %	5 U
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	102 %	107 %	5 U	96 %	5 U
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Toluene		5 U	106 %	111 %	5 U	98 %	5 U

\* = Outside of EPA CLP QC limits.

Cust ID: B153H4 B153H4 B153H4 VBLKHE VBLKHE BS VBLKJS

RFW#: 007 007 MS 007 MSD 02LVH324-MB1 02LVH324-MB1 02LVH327-MB1

Chlorobenzene	5 U	104 %	109 %	5 U	100 %	5 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U

\*= Outside of EPA CLP QC limits.

01

## Volatiles by GC/MS, HSL List

Report Date: 08/27/02 12:00

Client: TNUHANFORD F02-009 H1845 Work Order: 11343606001 Page: 3a

Sample	RFW#:	02LVH327-MB1
Information	Matrix:	WATER
	D.F.:	1.00
	Units:	ug/L

[illegible]

\*= Outside of EPA CLP QC limits.

Cust ID: VBLKJS BS

RFW#: 02LVH327-MB1

---

Chlorobenzene	104	%
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U

\*= Outside of EPA CLP QC limits.

12

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153F8

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 0207L262-001

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080718

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture: not dec.       

Date Analyzed: 08/07/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 3

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	SILOXANE	18.265	20	J
2.	SILOXANE	22.204	30	J
3.	UNKNOWN	25.482	5	J

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153F9

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 0207L262-002

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080719

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture: not dec.       

Date Analyzed: 08/07/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.				



VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

B153H0

Lab Name: Lionville Labs, Inc. Work Order: 11343606001Client: TNUHANFORD F02-009 H1845Matrix: WATERLab Sample ID: 0207L262-003Sample wt/vol: 5.00 (g/mL) MLLab File ID: h080714Level: (low/med) LOWDate Received: 07/26/02% Moisture: not dec.       Date Analyzed: 08/07/02Column: (pack/cap) CAPDilution Factor: 1.00Number TICs found: 0

## CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.				

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H1

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 0207L262-004

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080715

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture: not dec.       

Date Analyzed: 08/07/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
-----	-----	-----	-----	-----
1.				

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H2

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 0207L262-005

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080716

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture: not dec.       

Date Analyzed: 08/07/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.				

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H3

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 0207L262-006

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080717

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture: not dec.       

Date Analyzed: 08/07/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.				

18

1E

CLIENT SAMPLE NO.

VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

B153H4

Lab Name: Lionville Labs, Inc. Work Order: 11343606001Client: TNUHANFORD F02-009 H1845Matrix: WATERLab Sample ID: 0207L262-007Sample wt/vol: 5.00 (g/mL) MLLab File ID: h080820Level: (low/med) LOWDate Received: 07/26/02% Moisture: not dec.       Date Analyzed: 08/08/02Column: (pack/cap) CAPDilution Factor: 1.00Number TICs found: 3

CONCENTRATION UNITS:

(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	SILOXANE	18.267	90	J
2.	SILOXANE	22.206	200	J
3.	UNKNOWN	25.493	30	J

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKHE

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 02LVH324-MB1

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080706

Level: (low/med) LOW

Date Received: 08/07/02

% Moisture: not dec.       

Date Analyzed: 08/07/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.				

1E  
VOLATILE ORGANICS ANALYSIS SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKJS

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: WATER

Lab Sample ID: 02LVH327-MB1

Sample wt/vol: 5.00 (g/mL) ML

Lab File ID: h080818

Level: (low/med) LOW

Date Received: 08/08/02

% Moisture: not dec.       

Date Analyzed: 08/08/02

Column: (pack/cap) CAP

Dilution Factor: 1.00

Number TICs found: 0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.				

## Custody Transfer Record/Lab Work Request Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



LIONVILLE LABORATORY INC.

02076262

Client TNU-HANFORD SAF# F02-009

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJ

QC SPEC Del STD TAT 30 days

Date Rec'd 7-26-02

Date Due 8-25-02

Refrigerator #

#Type Container

Liquid

Solid

Volume

Liquid

Solid

Preservatives

ANALYSES REQUESTED

ORGANIC

INORG

VOA  
TCL  
BNA  
Pest  
HerbMetal  
H  
C

## MATRIX CODES:

S - Soil  
SE - Sediment  
SO - Solid  
SL - Sludge  
W - Water  
O - Oil  
A - Air  
DS - Drum  
DL - Drum  
L - EP/TCLP  
Leachate  
WI - Wipe  
X - Other  
F - Fish

Lab ID

Client ID/Description

Matrix QC Chosen (V)

MS MSD

Matrix

Date Collected

Time Collected

H 0624

H 0625

H 0608

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

H 0406

Lionville Laboratory Use Only

Special Instructions: SAF# F02-009

Run Matrix QC

## DATE/REVISIONS:

MET ① 1. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,

2. Mg, Mn, Na, Ni, Sb, V, Zn, Hg

8-15-02 3. Change OHBGN to OHBGX

4.

5.

6.

## Lionville Laboratory Use Only

Samples were:

1) Shipped or

Hand Delivered

Airbill #

2) Ambient or Shipped

3) Received in Good

Condition or N

4) Samples

Properly Preserved

5) Received Within

Holding Times

or N

COC Record Present

Upon Sample Rec't

Cooler

Temp. 4.8 °C

4.5

Tamper Resistant Seal was:

1) Present on Outer

Package or N

2) Unbroken on Outer

Package or N

3) Present on Sample

or N

4) Unbroken on

Sample or N

COC Record Present

Upon Sample Rec't

Cooler

Temp. 4.8 °C

4.5

Relinquished by	Received by	Date	Time
Paul Se	R-King	7-26-02	0910

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Discrepancies Between  
Samples Labels and  
COC Record? Y or N  
NOTES:

79049856 7747-7



FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F02-009-001		Page 1 of 2				
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround <b>45 Days</b>				
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>						
Ice Chest No. <b>SEE OSPC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express						
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>DDZ0185</b>		<b>7/25-22-02</b>		Bill of Lading/Air Bill No. <b>SEE OSPC</b>						
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> <b>**Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment</b> <b>Special Handling and/or Storage</b>				Preservation <b>COOL 4C</b> HCl to pH < 2		Cool 4C	Cool 4C	HNO3 to pH < 2	None	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2
				Type of Container aGs*		aG	aG	aG	P	P	P	P
				No. of Container(s)		3	2	4	1	1	2	1
				Volume		20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
				SAMPLE ANALYSIS		VOA - 8260A (TCL) <b>A-C</b>	Semi-VOA - 8270A (TCL) <b>DE</b>	Pesticides - 8081; Herbicides - 8150A <b>EF GH</b>	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium <b>I</b>	Tritium - H3	Americium-241	Gross Alpha; Gross Beta <b>AT</b>
Sample No.	Matrix *	Sample Date	Sample Time									
B153F8	WATER	7/25/02	0650	X	X	X	X					
B153F9	WATER	<b>AT 7/25/02</b>										
B153H0	WATER	<b>AT 7/25/02</b>										
B153H1	WATER	<b>AT 7/25/02</b>										
B153H2	WATER	<b>AT 7/25/02</b>										
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>				
Relinquished By/Removed From <b>Greg Thomas</b>		Date/Time <b>7/25/02 0710</b>		Received By/Stored In <b>ERC</b>		Date/Time <b>7-25-02</b>						
Relinquished By/Removed From <b>R. F. R.</b>		Date/Time <b>7-25-02 1400</b>		Received By/Stored In <b>Fed Ex</b>		Date/Time <b>7-26-02 0910</b>						
Relinquished By/Removed From <b>Fed Ex</b>		Date/Time <b>7-26-02 0910</b>		Received By/Stored In <b>Fed Ex</b>		Date/Time <b>7-26-02 0910</b>						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
<b>LABORATORY SECTION</b>		Received By		Title				Date/Time				
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By				Date/Time				

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				F02-009-001		Page 1 of 2					
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days					
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>							
Ice Chest No. <b>SEK 05PC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express							
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>7-23-02 R020185</b>		Bill of Lading/Air Bill No. <b>SEE 05PC</b>									
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage <b>Cool 4°C</b>			Preservation <b>COOL 4°C</b>		Cool 4C	Cool 4C	HNO3 to pH <2	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2		
			Type of Container <b>aGs*</b>		aG	aG	aG	P	P	P	P		
			No. of Container(s) <b>3</b>		2	4	1	1	1	2	1		
			Volume <b>20mL</b>		1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL		
			SAMPLE ANALYSIS		VOA - 8260A (TCL) <b>A-C</b>	Semi-VOA - 8270A (TCL) <b>D-E</b>	Pesticides - 8081; Herbicides - 8150A <b>FG</b>	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium <b>EE</b>	Tritium - H3	Americium-241	Gross Alpha; Gross Beta <b>47</b>	Strontium-89,90 - Total Sr <b>7/25/02</b>	
Sample No.	Matrix *	Sample Date	Sample Time										
B453F8	<del>WATER</del>	<b>47 7/25/02</b>											
B153F9	WATER	<b>7/25/02</b>	<b>0855</b>	X	X	X	X						
B153H0	WATER	<b>7/25/02</b>	<b>0920</b>	X	X	X	X						
B153H1	WATER	<b>7/25/02</b>	<b>0950</b>	X	X	X	X						
B153H2	WATER	<b>7/25/02</b>	<b>1025</b>	X	X	X	X						
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>		<b>SPECIAL INSTRUCTIONS</b>						<b>Matrix *</b> S=Soil SE=Sediment SD=Solid Sl=Sludge W=Water O=Oil A=Air DS=Dry Solids DL=Dry Liquids T=Tissue Wt=Wipe L=Liquid V=Vegetation X=Other	
Relinquished By/Removed From <b>Greg Thomas</b>		Date/Time <b>7/25/02 1200</b>		Received By/Stored In <b>R. F. Kelly</b>		Date/Time <b>7-25-02</b>							
Relinquished By/Removed From <b>R. F. Kelly</b>		Date/Time <b>7-25-02 1400</b>		Received By/Stored In <b>F. J. Ex</b>		Date/Time							
Relinquished By/Removed From <b>F. J. Ex</b>		Date/Time <b>7-26-02 0910</b>		Received By/Stored In <b>P. Kelly</b>		Date/Time <b>7-26-02 0910</b>							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
LABORATORY SECTION		Received By		Title		Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time							

<b>FH-Central Plateau Project</b>				<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				F02-009-001		Page 2 of 2			
Collector GA Thomas, MA Baechler				Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround <b>45 Days</b>			
Project Designation ModuTank - Annual Sampling of Purgewater				Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>					
Ice Chest No. <b>SEE O5PC</b>				Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (Formerly TMA)				Offsite Property No. <b>A020185 MB7-23-02</b>		Bill of Lading/Air Bill No. <b>SEE O5PC</b>							
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> <b>**Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.</b> <b>Special Handling and/or Storage</b> <b>Cool 4°C</b>				Preservation		Cool 4C	Cool 4C	HNO3 to pH <2	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	
				Type of Container		aGs*	aG	aG	aG	P	P	P	P
				No. of Container(s)		3	2	4	1	1	1	2	1
				Volume		20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL
<b>SAMPLE ANALYSIS</b>				VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	Pesticides - 8081; Herbicides - 8150A	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotope Plutonium	Tritium - H3	Americium-241	Gross Alpha Gross Beta	Strontium-89,90 -- Total Sr		
				<b>A-C</b>	<b>DE</b>	<b>FG-HI</b>	<b>I</b>			<b>7/25/02</b>			
Sample No.	Matrix *	Sample Date	Sample Time										
B153H3	WATER	7/25	1655	X	X	X	X						
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
G. Thomas, M. Baechler		7/25/02		B. F. ...		7-25-02							
R. F. ...		7-25-02		F. ...		7-25-02							
F. ...		7-26-02 0910		F. ...		7-26-02 0910							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
<b>LABORATORY SECTION</b>		Received By		Title				Date/Time					
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By				Date/Time					

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				F02-009-002		Page 1 of 1												
Collector GA Thomas, MA Bacchler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days												
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>														
Ice Chest No. <b>SEF03PC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express														
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>A020185</b>		Bill of Lading/Air Bill No. <b>SEF03PC</b>																
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>  **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.  Special Handling and/or Storage  <b>CO0145C</b>			Preservation		HCl to pH <2 Cool 4C															
			Type of Container		aGs*															
			No. of Container(s)		3															
			Volume		40mL															
<b>SAMPLE ANALYSIS</b>					VOA - 8260A (TCL)															
					<b>AC</b>															
Sample No.		Matrix *		Sample Date		Sample Time														
B153H4		WATER		7/25/02		0700		X												
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>						<b>Matrix *</b>  S=Soil SB=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WL=Wipe L=Liquid V=Vegetation X=Other						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
Greg Thomas FH, MA Thomas		7/25/02		R. F. ...		7-25-02														
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
R. F. ...		7-25-02		Fed Ex																
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
Fed Ex		7-26-02 0910		R. F. ...		7-26-02 0910														
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time														
<b>LABORATORY SECTION</b>		Received By				Title				Date/Time										
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method				Disposed By				Date/Time										

tractor BHI-HANFORD	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) A020185
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PART I - TO BE COMPLETED BY ORIGINATOR

Engineering Support      Field Analytical Support      Field Sampling Support

The following items are to be shipped from ☒ Contractor ☐ Vendor

Routing **FED EX** ☒ Prepaid ☐ Collect

shipped to company address city country	<b>RECRA LAB NET</b> <b>208 WELSH POOL ROAD</b> <b>LIONVILLE, PA 19341-1333</b> <b>ATTN: ORLETTE JOHNSON</b>  State      Zip Code (610) 280-3012	Off-site Custodian  On-site Custodian      HID
---	--	--

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
of 6	77165	SML 421 SAF B02-004 and F02-009	
of 6	82165	ERC 96-018 SAF F02-009	
of 6	75165	ERC 96-014 SAF F02-009	
of 6	78165	ERC 02-007 SAF F02-009	
of 6	72165	SML 441 SAFF02-009	
of 6	74165	ERC 96-004 SAFF02-009 #1 of 6 7905 7105 7415	
		#2 of 6 7905 7105 7426	

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Essity for the off-site use of this property

☐ Required for Project Work. List Project No. \_\_\_\_\_

☐ Business Trip

☐ Off-site Assignment

☐ Shipment to Subcontractor. List Subcontract No. \_\_\_\_\_

☐ Other (Please specify) \_\_\_\_\_

#3 of 6 7904 9856 9203

#4 of 6 7905 7105 7492

#5 of 6 7904 9856 9747

#6 of 6 7905 7105 7573

ENVIRONMENTAL SAMPLES PACKAGED IN  
POLYCOOLER WITH WET ICE AND DRY SORB

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release <b>NA</b>	RM Survey No. <b>NA</b>	Date
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Location of and Contact for Property (Name/Phone No./Bldg./Area)

**R. Fehle 376-6500 - RHKI THOREN/521-8003/3728 BUILDING/300 AREA**

Date Ready for Shipment <b>7-25-02</b>	Cost Code to be Charged <b>XE 2035 PHM</b>	Approximate Date This Property will be Returned
Originated By <b>R. Fehle</b>	Date <b>7-25-02</b>	Authorized By
Property Representative Signature <b>R. Fehle</b>	Date <b>7-25-02</b>	Property Management Approval
		Date

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature <b>C.R. Kelman</b>	Date <b>7-25-02</b>
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Priorita Overnight - Friday Delivery

A-6003-091 (03/01)

# LIONVILLE LABORATORY INCORPORATED

## SAMPLE RECEIPT CHECKLIST

CLIENT: *HANFORD*

Purchase Order/Project:

DATE: *7-26-02*

SAF# / SOW# / Release #: *F02-009*

Laboratory SDG #:

*0207C 262*

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc faxed or emailed to client?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |

Cooler # / temp and Comments:

*441 4.5*  
*224 2.9*  
*96-064 4.1*  
*02-007 4.2*  
*96-018 2.5*  
*421 4.8*

Laboratory Sample Custodian:

*[Signature]*

Laboratory Project Manager:

Lionville Laboratory, Inc.  
BNA ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B153F8	001	W	02LE0866	07/25/02	07/29/02	08/15/02
B153F9	002	W	02LE0866	07/25/02	07/29/02	08/15/02
B153H0	003	W	02LE0866	07/25/02	07/29/02	08/15/02
B153H1	004	W	02LE0866	07/25/02	07/29/02	08/15/02
B153H2	005	W	02LE0866	07/25/02	07/29/02	08/15/02
B153H3	006	W	02LE0866	07/25/02	07/29/02	08/15/02
B153H3	006 MS	W	02LE0866	07/25/02	07/29/02	08/15/02
B153H3	006 MSD	W	02LE0866	07/25/02	07/29/02	08/16/02

LAB QC:

SBLKAO	MB1	W	02LE0866	N/A	07/29/02	08/15/02
SBLKAO	MB1 BS	W	02LE0866	N/A	07/29/02	08/15/02





**Client:** TNU-HANFORD F02-009

**LVL #:** 0207L262

**SDG/SAF #:** H1845/F02-009

**W.O. #:** 11343-606-001-9999-00

**Date Received:** 07-26-2002

### SEMIVOLATILE

Six (6) water samples were collected on 07-25-2002.

The samples and their associated QC samples were extracted according to Lionville Laboratory OPs based on method 3520 on 07-29-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 08-15,16-2002.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. Six (6) of sixty (60) surrogate recoveries were outside EPA QC limits. However, EPA CLP surrogate recovery criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).
5. All matrix spike recoveries were within EPA QC limits.
6. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than 2x the CRQL. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to OP L-QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in the Glossary ("Technical Flags For Manual Integration").
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

  
J. Michael Taylor

President

Lionville Laboratory Incorporated

08-26-02

Date

son\group\data\bua\tnu-hanford-0207-262.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 24 pages.



# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 02MS166

Initiator: M. Kober  
Date: 8/16/02  
Client: TNU Harford

Batch: 0207L262  
Samples: blank  
Method: SW846/MCAWW/CLP1

Parameter: 1625H  
Matrix: water  
Prep Batch: 02LE0866

## 1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other

## b. General Discrepancy

☐ Missing Sample/Extract\* ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample\* ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note\*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

## c. Problem (Include all relevant specific results; attach data if necessary)

the method blank contains bis(2-ethylhexyl)phthalate @ 16 ug/L (ppb),  
all samples also contain bis(2-ethylhexyl)phthalate in the ranges of  
4 ppb to 27 ppb

## 2. Known or Probable Causes(s)

## 3. Discussion and Proposed Action

Other Description:

report and narrate

☐ Re-log  
☐ Entire Batch  
☐ Following Samples: \_\_\_\_\_  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to \_\_\_\_\_  
☐ Place On/Take Off Hold (circle)

## 4. Project Manager Instructions...signature/date:

☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☐ Include in Case Narrative  
☐ Client Contacted:  
Date/Person \_\_\_\_\_  
☐ Add  
☐ Cancel

## 5. Final Action...signature/date:

Other Explanation:

☐ Verified re-[log][leach][extract][digest][analysis] (circle)  
☒ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

## Route Distribution of Completed SDR

☐ X Initiator  
☒ X Lab General Manager: M. Taylor  
☐ X Project Mgr: Stone/Johnson/Haslett  
☐ X Technical Mgr: Wesson/Daniels  
☐ X QA (file): Alberts  
☐ Data Management: Feldman  
☐ Sample Prep: Beegle/Kiger

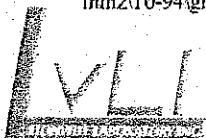
## Route Distribution of Completed SDR

☐ Metals: Beegle  
☐ Inorganic: Perrone  
☐ GC/LC: Kiger  
☐ MS: Rychlak/Layman  
☐ Log-in: Melnic  
☐ Admin: Soos  
☐ Other: \_\_\_\_\_

## GLOSSARY OF BNA DATA

### DATA QUALIFIERS

- U** = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
- J** = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B** = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
- E** = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- D** = Identifies all compounds identified in an analysis at a secondary dilution factor.
- I** = Interference.
- NQ** = Result qualitatively confirmed but not able to quantify.
- A** = Indicates that a TIC is a suspected aldol-condensation product.
- N** = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
- X** = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
- Y** = Additional qualifiers used as required are explained in the case narrative.



## GLOSSARY OF BNA DATA

### ABBREVIATIONS

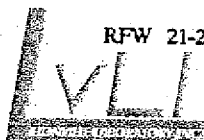
BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.



## TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

- MP - Missed Peak: manually added peak not found by automatic quan program.
- PA - Peak Assignment: quan report was changed to reflect correct peak assignment.
- RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.
- SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.
- CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.
- PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.



## Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 08/23/02 15:15

RFW Batch Number: 0207L262

Client: TNUHANFORD F02-009 H1845

Work Order: 11343606001

Page: 1a

Cust ID:		B153F8	B153F9	B153H0	B153H1	B153H2	B153H3
Sample RFW#:		001	002	003	004	005	006
Information Matrix:		WATER	WATER	WATER	WATER	WATER	WATER
D.F.:		1.00	1.00	1.00	1.00	1.00	1.00
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Nitrobenzene-d5		61 %	74 %	55 %	63 %	57 %	64 %
Recovery 2-Fluorobiphenyl		59 %	66 %	48 %	47 %	51 %	52 %
Terphenyl-d14		79 %	18 * %	18 * %	13 * %	17 * %	15 * %
Phenol-d5		68 %	76 %	56 %	58 %	62 %	61 %
2-Fluorophenol		74 %	76 %	62 %	50 %	58 %	60 %
2,4,6-Tribromophenol		83 %	107 %	85 %	89 %	104 %	91 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Phenol		10 U	10 U	11 U	10 U	10 U	10 U
bis(2-Chloroethyl) ether		10 U	10 U	11 U	10 U	10 U	10 U
2-Chlorophenol		10 U	10 U	11 U	10 U	10 U	10 U
1,3-Dichlorobenzene		10 U	10 U	11 U	10 U	10 U	10 U
1,4-Dichlorobenzene		10 U	10 U	11 U	10 U	10 U	10 U
1,2-Dichlorobenzene		10 U	10 U	11 U	10 U	10 U	10 U
2-Methylphenol		10 U	10 U	11 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)		10 U	10 U	11 U	10 U	10 U	10 U
3- and/or 4-Methylphenol		10 U	10 U	11 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine		10 U	10 U	11 U	10 U	10 U	10 U
Hexachloroethane		10 U	10 U	11 U	10 U	10 U	10 U
Nitrobenzene		10 U	10 U	11 U	10 U	10 U	10 U
Isophorone		10 U	10 U	11 U	10 U	10 U	10 U
2-Nitrophenol		10 U	10 U	11 U	10 U	10 U	10 U
2,4-Dimethylphenol		10 U	10 U	11 U	10 U	10 U	10 U
bis(2-Chloroethoxy) methane		10 U	10 U	11 U	10 U	10 U	10 U
2,4-Dichlorophenol		10 U	10 U	11 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene		10 U	10 U	11 U	10 U	10 U	10 U
Naphthalene		10 U	10 U	11 U	10 U	10 U	10 U
4-Chloroaniline		10 U	10 U	11 U	10 U	10 U	10 U
Hexachlorobutadiene		10 U	10 U	11 U	10 U	10 U	10 U
4-Chloro-3-methylphenol		10 U	10 U	11 U	10 U	10 U	10 U
2-Methylnaphthalene		10 U	10 U	11 U	10 U	10 U	10 U
Hexachlorocyclopentadiene		10 U	10 U	11 U	10 U	10 U	10 U
2,4,6-Trichlorophenol		10 U	10 U	11 U	10 U	10 U	10 U
2,4,5-Trichlorophenol		25 U	26 U	27 U	26 U	25 U	25 U

\* = Outside of EPA CLP QC limits.

Cust ID:	B153F8	B153F9	B153H0	B153H1	B153H2	B153H3
RFW#:	001	002	003	004	005	006
2-Chloronaphthalene	10 U	10 U	11 U	10 U	10 U	10 U
2-Nitroaniline	25 U	26 U	27 U	26 U	25 U	25 U
Dimethylphthalate	10 U	10 U	11 U	10 U	10 U	10 U
Acenaphthylene	10 U	10 U	11 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	11 U	10 U	10 U	10 U
3-Nitroaniline	25 U	26 U	27 U	26 U	25 U	25 U
Acenaphthene	10 U	10 U	11 U	10 U	10 U	10 U
2,4-Dinitrophenol	25 U	26 U	27 U	26 U	25 U	25 U
4-Nitrophenol	25 U	26 U	27 U	26 U	25 U	25 U
Dibenzofuran	10 U	10 U	11 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	11 U	10 U	10 U	10 U
Diethylphthalate	10 U	0.7 J	11 U	10 U	0.6 J	10 U
4-Chlorophenyl-phenylether	10 U	10 U	11 U	10 U	10 U	10 U
Fluorene	10 U	10 U	11 U	10 U	10 U	10 U
4-Nitroaniline	25 U	26 U	27 U	26 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25 U	26 U	27 U	26 U	25 U	25 U
N-Nitrosodiphenylamine (1)	10 U	10 U	11 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	11 U	10 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	11 U	10 U	10 U	10 U
Pentachlorophenol	25 U	26 U	27 U	26 U	25 U	25 U
Phenanthrene	10 U	10 U	11 U	10 U	10 U	10 U
Anthracene	10 U	10 U	11 U	10 U	10 U	10 U
Carbazole	10 U	10 U	11 U	10 U	10 U	10 U
Di-n-butylphthalate	10 U	0.7 J	0.7 J	10 U	0.6 J	10 U
Fluoranthene	10 U	10 U	11 U	10 U	10 U	10 U
Pyrene	10 U	10 U	11 U	10 U	10 U	10 U
Butylbenzylphthalate	10 U	10 U	11 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	11 U	10 U	10 U	10 U
Chrysene	10 U	10 U	11 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	9 JB	20 B	7 JB	13 B	9 JB	4 JB
Di-n-octyl phthalate	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	11 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	11 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	11 U	10 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. \*= Outside of EPA CLP QC limits.

Report Date: 08/23/02 15:15

Page: 2a

\* = Outside of EPA CLP OC limits.

Cust ID:

B153H3

B153H3

SBLKAO

SBLKAO BS

RWF#:

006 MS

006 MSD

02LE0866-MB1

02LE0866-MB1

2-Chloronaphthalene	20 U	20 U	10 U	10 U
2-Nitroaniline	50 U	50 U	25 U	25 U
Dimethylphthalate	20 U	20 U	10 U	10 U
Acenaphthylene	20 U	20 U	10 U	10 U
2,6-Dinitrotoluene	20 U	20 U	10 U	10 U
3-Nitroaniline	50 U	50 U	25 U	25 U
Acenaphthene	70 %	75 %	10 U	78 %
2,4-Dinitrophenol	50 U	50 U	25 U	25 U
4-Nitrophenol	75 %	77 %	25 U	83 * %
Dibenzofuran	20 U	20 U	10 U	10 U
2,4-Dinitrotoluene	36 %	79 %	10 U	79 %
Diethylphthalate	20 U	20 U	10 U	10 U
4-Chlorophenyl-phenylether	20 U	20 U	10 U	10 U
Fluorene	20 U	20 U	10 U	10 U
4-Nitroaniline	50 U	50 U	25 U	25 U
4,6-Dinitro-2-methylphenol	50 U	50 U	25 U	25 U
N-Nitrosodiphenylamine (1)	20 U	20 U	10 U	10 U
4-Bromophenyl-phenylether	20 U	20 U	10 U	10 U
Hexachlorobenzene	20 U	20 U	10 U	10 U
Pentachlorophenol	34 %	73 %	25 U	84 %
Phenanthrene	20 U	20 U	10 U	10 U
Anthracene	20 U	20 U	10 U	10 U
Carbazole	20 U	20 U	10 U	10 U
Di-n-butylphthalate	1 J	20 U	10 U	10 U
Fluoranthene	20 U	20 U	10 U	10 U
Pyrene	72 %	58 %	10 U	83 %
Butylbenzylphthalate	1 J	20 U	10 U	10 U
3,3'-Dichlorobenzidine	20 U	20 U	10 U	10 U
Benzo(a)anthracene	20 U	20 U	10 U	10 U
Chrysene	20 U	20 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	27 B	11 JB	16	11 B
Di-n-octyl phthalate	20 U	20 U	10 U	10 U
Benzo(b)fluoranthene	20 U	20 U	10 U	10 U
Benzo(k)fluoranthene	20 U	20 U	10 U	10 U
Benzo(a)pyrene	20 U	20 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	20 U	20 U	10 U	10 U
Dibenz(a,h)anthracene	20 U	20 U	10 U	10 U
Benzo(g,h,i)perylene	20 U	20 U	10 U	10 U

(1) - Cannot be separated from Diphenylamine. \*= Outside of EPA CLP QC limits.



1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153F8

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: (soil/water) WATER

Lab Sample ID: 0207L262-001

Sample wt/vol: 990 (g/mL) ML

Lab File ID: A081508

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture:        decanted: (Y/N)       

Date Extracted: 07/29/02

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 08/15/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 3

(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	UNKNOWN	3.871	4	J
2.	UNKNOWN	18.858	7	J
3.	UNKNOWN	21.844	2	J

//

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

B153F9

Lab Name: Lionville Labs, Inc. Work Order: 11343606001Client: TNUHANFORD F02-009 H1845Matrix: (soil/water) WATERLab Sample ID: 0207L262-002Sample wt/vol: 980 (g/mL) MLLab File ID: A081509Level: (low/med) LOWDate Received: 07/26/02

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 07/29/02Concentrated Extract Volume: 1000 (uL)Date Analyzed: 08/15/02Injection Volume: 2.0 (uL)Dilution Factor: 1.00GPC Cleanup: (Y/N) NpH: 7.0

CONCENTRATION UNITS:

Number TICs found: 5(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ORGANIC ACID	17.032	5	J
2.	UNKNOWN	18.880	10	J
3.	ORGANIC ACID	19.012	20	J
4.	UNKNOWN	20.289	9	J
5.	UNKNOWN	20.707	50	J

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H0

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: (soil/water) WATER

Lab Sample ID: 0207L262-003

Sample wt/vol: 920 (g/mL) ML

Lab File ID: A081510

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture:        decanted: (Y/N)    

Date Extracted: 07/29/02

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 08/15/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ORGANIC ACID	17.035	6	J
2.	UNKNOWN	18.883	10	J
3.	ORGANIC ACID	19.009	20	J
4.	UNKNOWN	20.286	20	J
5.	UNKNOWN	20.704	100	J

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H1

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: (soil/water) WATER

Lab Sample ID: 0207L262-004

Sample wt/vol: 960 (g/mL) ML

Lab File ID: A081511

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 07/29/02

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 08/15/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ORGANIC ACID	17.039	6	J
2.	UNKNOWN	18.877	10	J
3.	ORGANIC ACID	19.009	20	J
4.	UNKNOWN	20.289	10	J
5.	UNKNOWN	20.700	60	J

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H2

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: (soil/water) WATER

Lab Sample ID: 0207L262-005

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: A081512

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture:        decanted: (Y/N)       

Date Extracted: 07/29/02

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 08/15/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/L

Number TICs found: 5

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ORGANIC ACID	17.043	7	J
2.	UNKNOWN	18.887	20	J
3.	ORGANIC ACID	19.020	30	J
4.	UNKNOWN	20.292	20	J
5.	UNKNOWN	20.698	60	J

1F  
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B153H3

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD F02-009 H1845

Matrix: (soil/water) WATER

Lab Sample ID: 0207L262-006

Sample wt/vol: 990 (g/mL) ML

Lab File ID: A081513

Level: (low/med) LOW

Date Received: 07/26/02

% Moisture:        decanted: (Y/N)       

Date Extracted: 07/29/02

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 08/15/02

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

CONCENTRATION UNITS:

Number TICs found: 5 (ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.033	3	J
2.	UNKNOWN	18.877	9	J
3.	ORGANIC ACID	19.010	10	J
4.	UNKNOWN	20.283	9	J
5.	UNKNOWN	20.701	100	J

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET  
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKAO

Lab Name: Lionville Labs, Inc. Work Order: 11343606001Client: TNUHANFORD F02-009 H1845Matrix: (soil/water) WATERLab Sample ID: 02LE0866-MB1Sample wt/vol: 1000 (g/mL) MLLab File ID: A081505Level: (low/med) LOWDate Received: 07/29/02

% Moisture: \_\_\_\_\_ decanted: (Y/N) \_\_\_\_\_

Date Extracted: 07/29/02Concentrated Extract Volume: 1000 (uL)Date Analyzed: 08/15/02Injection Volume: 2.0 (uL)Dilution Factor: 1.00GPC Cleanup: (Y/N) NpH: 7.0CONCENTRATION UNITS:  
(ug/L or ug/Kg) ug/LNumber TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	UNKNOWN	18.386	30	J

## Custody Transfer Record/Lab Work Request Page 1 of 1



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU - HANFORD SAFH F02-009

Est. Final Proj. Sampling Date

Project # 11343-606-001-9999-00

Project Contact/Phone #

Lionville Laboratory Project Manager OJOC SPEC Del STD TAT 30 daysDate Rec'd 7-26-02Date Due 8-25-02

Refrigerator #

#/Type Container

Volume

Preservatives

ANALYSES  
REQUESTED

1 2 2

Liquid

Solid

Liquid

Solid

ORGANIC

VOA

TCL

BNA

Pest

Herb

H

H

H

H

H

H

H

H

H

H

H

H

H

H

H

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H

Lionville Laboratory Use Only

MATRIX  
CODES:

S - Soil  
SE - Sediment  
SO - Solid  
SL - Sludge  
W - Water  
O - Oil  
A - Air  
DS - Drum  
DL - Drum  
L - EP/CLP  
WI - Wipe  
X - Other  
F - Fish

Lab  
ID

Client ID/Description

Matrix  
QC  
Chosen  
(✓)

MS MSD

Matrix

Date  
CollectedTime  
CollectedH  
0624HH  
0625HH  
0608HH  
0406GN

MET

001 B153 F8

002 F9

003 H0

004 H1

005 H2

006 H3

007 H4

W

72502

0650

3

2

4

1

1

I

0855

3

2

4

1

1

I

0920

3

2

4

1

1

I

0950

3

2

4

1

1

I

1025

3

2

4

1

1

I

1055

3

2

4

1

1

I

0700

3

2

4

1

1

Special Instructions: SAF # F02-009Run Matrix QC

DATE/REVISIONS:

MET ① 1. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,

2. Mg, Mn, Na, Ni, Sb, V, Zn, Hg

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

Lionville Laboratory Use Only

Samples were:  
1) Shipped ☒ or  
Hand Delivered ☐  
Airbill # See Photo  
2) Ambient or Shaded  
3) Received in Good  
Condition ☒ or N  
4) Samples  
Properly Preserved ☒ or N  
5) Received Within  
Holding Times ☒ or N

Tamper Resistant Seal was:  
1) Present on Outer  
Package ☒ or N  
2) Unbroken on Outer  
Package ☒ or N  
3) Present on Sample  
Package ☒ or N  
4) Unbroken on  
Sample ☒ or N  
COC Record Present  
Upon Sample Rec't  
☒ or N  
Cooler 4.8 °C  
Temp. 11.5 °C

Relinquished  
byReceived  
by

Date

Time

Relinquished  
byReceived  
by

Date

Time

Discrepancies Between  
Samples Labels and  
COC Record? Y or N  
NOTES:

COMPOSITE  
WASTEORIGINAL  
REWRITTEN



FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F02-009-001		Page 1 of 2									
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days									
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>													
Ice Chest No. <b>SEE OSCR</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express													
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>0820186</b>		<b>7-22-02</b>		Bill of Lading/Air Bill No. <b>SEE OSCR</b>													
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment <b>Special Handling and/or Storage</b>				Preservation Cool 4C		Cool 4C		Cool 4C		HNO3 to pH <2		None		HNO3 to pH <2		HNO3 to pH <2		HNO3 to pH <2	
				Type of Container aGs*		aG		aG		aG		P		P		P		P	
				No. of Container(s)		3		2		4		1		1		2		1	
				Volume		20mL		1000mL		1000mL		500mL		1000mL		1000mL		1000mL	
				SAMPLE ANALYSIS		VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)		Pesticides - 8081; Herbicides - 8150A		ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium		Tritium - H3		Americium-241		Gross Alpha; Gross Beta	
Sample No.		Matrix *		Sample Date		Sample Time													
B153F8		WATER		7/25/02		0650		X		X		X		X					
B153F9		WATER		AT 7/25/02															
B153H0		WATER		AT 7/25/02															
B153H1		WATER		AT 7/25/02															
B153H2		WATER		AT 7/25/02															
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>								<b>Matrix *</b> S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Greg Thomas		7/25/02 0710		R. F. Ellis		7-25-02													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
R. F. Ellis		7-25-02 1400		Fred Ex															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Fred Ex		7-26-02 0910		R. F. Ellis		7-26-02 0910													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
<b>LABORATORY SECTION</b>		Received By		Title		Date/Time													
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By		Date/Time													

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				<b>F02-009-001</b>		Page 1 of 2													
Collector GA Thomas, MA Bacchler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days													
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>															
Ice Chest No. <b>SEK OSPC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express															
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>7-23-02 Rd 20185</b>		Bill of Lading/Air Bill No. <b>SEE OSPC</b>																	
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>  **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.  <b>Special Handling and/or Storage</b>  <div style="font-size: 1.5em; margin-left: 20px;">Cool 4°C</div>				<b>Preservation</b>		Cool 4C		Cool 4C		HNO3 to pH <2		None		HNO3 to pH <2		HNO3 to pH <2		HNO3 to pH <2			
				<b>Type of Container</b>		aGs*		aG		aG		aG		P		P		P		P	
				<b>No. of Container(s)</b>		3		2		4		1		1		1		2		1	
				<b>Volume</b>		20mL		1000mL		1000mL		500mL		1000mL		1000mL		1000mL		1000mL	
				<b>SAMPLE ANALYSIS</b>		VOA - 8260A (TCL) <b>A-C</b>		Semi-VOA - 8270A (TCL) <b>D-E</b>		Pesticides - 8081; Herbicides - 8150A <b>FG</b>		ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium <b>I</b>		Trithium - H3		Americium-241		Gross Alpha; Gross Beta <b>GT 7/25/02</b>		Strontium-89,90 - Total Sr	
Sample No.		Matrix *		Sample Date		Sample Time															
B153F8		WATER		7/25/02																	
B153F9		WATER		7/25/02		0855		X		X		X		X							
B153H0		WATER		7/25/02		0920		X		X		X		X							
B153H1		WATER		7/25/02		0950		X		X		X		X							
B153H2		WATER		7/25/02		1025		X		X		X		X							
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>								<b>Matrix *</b>					
Relinquished By/Removed From <i>Greg Thomas / MA Bacchler</i>				Date/Time 7/25/02 1200				Received By/Stored In <i>R. Felle</i>				Date/Time 7-25-02						S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WT=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From <i>R. Felle</i>				Date/Time 7-25-02 1400				Received By/Stored In <i>Felle</i>				Date/Time									
Relinquished By/Removed From <i>Felle</i>				Date/Time 7-26-02 0910				Received By/Stored In <i>Felle</i>				Date/Time									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
<b>LABORATORY SECTION</b>		Received By		Title		Date/Time															
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By		Date/Time															

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				<b>F02-009-001</b>		Page 2 of 2													
Collector GA Thomas, MA Bacchler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code <b>7N</b> Data Turnaround <b>45 Days</b>													
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>															
Ice Chest No. <b>SEE OSPC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express															
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>A020185 MD7-27-02</b>		Bill of Lading/Air Bill No. <b>SEE OSPC</b>																	
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> <b>**Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.</b> <b>Special Handling and/or Storage</b> <b>Cool 4°C</b>				<b>Preservation</b>		<b>COOL 4C</b>		<b>COOL 4C</b>		<b>HNO3 to pH &lt;2</b>		<b>None</b>		<b>HNO3 to pH &lt;2</b>		<b>HNO3 to pH &lt;2</b>		<b>HNO3 to pH &lt;2</b>			
				<b>Type of Container</b>		aGs*		aG		aG		aG		P		P		P		P	
				<b>No. of Container(s)</b>		3		2		4		1		1		1		2		1	
				<b>Volume</b>		20mL		1000mL		1000mL		500mL		1000mL		1000mL		1000mL		1000mL	
<b>SAMPLE ANALYSIS</b>				VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)		Pesticides - 8081; Herbicides - 8150A		ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium		Tritium - H3		Americium-241		Gross Alpha Gross Beta		Strontium-89,90 -- Total Sr.			
				<b>A-C</b>		<b>DE</b>		<b>FG HI</b>		<b>I</b>								<b>7/25/02</b>			
<b>Sample No.</b>		<b>Matrix *</b>		<b>Sample Date</b>		<b>Sample Time</b>															
B153H3		WATER		7/25		1655		X		X		X		X							
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>								<b>Matrix *</b> S=Salt SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Greg Thomas FH, Greg Thomas		7/25/02 1200		B. F. Allen R. F. Allen		7-25-02															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
R. F. Allen R. F. Allen		7-25-02 1400		F. J. E. E.																	
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
F. J. E. E.		7-26-02 0910		V. H. E. E.		7-26-02 0910															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
<b>LABORATORY SECTION</b>		Received By				Title				Date/Time											
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method				Disposed By				Date/Time											

FH-Central Plateau Project			CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F02-009-002	Page 1 of 1
Collector GA Thomas, MA Beechler	Company Contact CS Wright	Telephone No. 373-3994	Project Coordinator TRENT, SJ		Price Code <b>7N</b>	Data Turnaround <b>45 Days</b>	
Project Destination Model Tank - Annual Sampling of Purgewater	Sampling Location Purgewater Storage and Treatment Facility	SAP No. F02-009	Air Quality <input type="checkbox"/>				
Ice Chest No.	Field Logbook No. <b>HNF-N-314</b>	COA 117546DS10	Method of Shipment Federal Express				
Shipped To EBERLINE SERVICES (Formerly TMA)	Offsite Property No.	Bill of Lading/Air Bill No.		<b>SEFE 0512</b>			
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pH/g total activity and therefore do not require a RCF red screen for off-site shipment. <b>Special Handling and/or Storage</b> <b>Cool 4°C</b>							
<b>SAMPLE ANALYSIS</b>							
Sample No.	Matrix *	Sample Date	Sample Time	X			
B153H4	WATER	7/25/02	0700	X			
<b>CHAIN OF POSSESSION</b>							
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time			
Greg Thomas FH, MA Beechler		7/25/02	R. F. ...	7.25.02			
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time			
R. F. ...		7.25.02	Fed Ex				
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time			
R. F. ...		7.26.02	...	7.26.02			
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time			
R. F. ...		7.26.02	...	7.26.02			
Relinquished By/Removed From		Date/Time	Received By/Stored In	Date/Time			
R. F. ...		7.26.02	...	7.26.02			
<b>SPECIAL INSTRUCTIONS</b>							
<b>LABORATORY SECTION</b>							
Received By		Title					
<b>FINAL SAMPLE DISPOSITION</b>							
Disposed Method		Disposed By					

Contractor <b>BHI-HANFORD</b>	<b>OFF-SITE PROPERTY CONTROL</b>	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) <b>A020185</b>
----------------------------------	--------------------------------------	--

**PART I - TO BE COMPLETED BY ORIGINATOR**

<b>Engineering Support</b>	<b>Field Analytical Support</b>	<b>Field Sampling Support</b>
----------------------------	---------------------------------	-------------------------------

The following items are to be shipped from

☒ Contractor ☐ Vendor

Routing **FED EX**

☒ Prepaid ☐ Collect

Shipped to **RECRA LAB NET**  
 Company **208 WELSH POOL ROAD**  
 Address **LIONVILLE, PA 19341-1333**  
 ATTN: **ORLETTE JOHNSON**  
 City  
 State Zip Code  
 Country **(610) 280-3012**

Off-site Custodian

On-site Custodian

HID

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 of 6	77163	SML 421 SAF B02-024 and F02-009	
2 of 6	82165	ERC 96-018 SAF F02-009	
3 of 6	75163	ERC 96-014 SAF F02-009	
4 of 6	78163	ERC 02-007 SAF F02-009	
5 of 6	72165	SML 441 SAF F02-009	
6 of 6	74163	ERC 96-064 SAF F02-009 #1 of 6 7905 7105 7415	
		#2 of 6 7905 7105 7426	

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☐ Required for Project Work. List Project No. \_\_\_\_\_

☐ Business Trip

☐ Off-site Assignment

☐ Shipment to Subcontractor. List Subcontract No. \_\_\_\_\_

☐ Other (Please specify) \_\_\_\_\_

#3 of 6 7904 9856 9203

#4 of 6 7905 7105 7492

#5 of 6 7904 9856 9747

#6 of 6 7905 7105 7573

**ENVIRONMENTAL SAMPLES PACKAGED IN  
POLYCOOLER WITH WET ICE AND DRY SORB**

**CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.**

RM Clearance for Public Release <b>NA</b>	RM Survey No. <b>NA</b>	Date
---	-------------------------	------

Location of and Contact for Property (Name/Phone No./Bldg./Area)

**R. Fahlberg 376-6500 - RIKKI THOREN/521-8003/3728 BUILDING/300 AREA**

Date Ready for Shipment <b>7-25-02</b>	Cost Code to be Charged <b>XE 2035 PHMC</b>	Approximate Date This Property will be Returned
Originated By <b>R. Fahlberg</b>	Date <b>7-25-02</b>	Authorized By
Property Representative Signature <b>R. Fahlberg</b>	Date <b>7-25-02</b>	Property Management Approval
		Date

**PART II - TO BE COMPLETED BY SHIPPING**

Authorized Shipping Signature <b>C.R. Nelson</b>	Date <b>7-25-02</b>
---	------------------------

**Priorita Overnight - Friday Delivery**

A-6003-091 (03/01)

23

# LIONVILLE LABORATORY INCORPORATED

## SAMPLE RECEIPT CHECKLIST

CLIENT: *HPA/Fore*

Purchase Order/Project:

DATE: *7-26-02*

SAF# / SOW# / Release #: *F02-009*

Laboratory SDG #: *0207C 262*

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc faxed or emailed to client?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |

Cooler # / temp and Comments:

*441 4.5*  
*224 2.9*  
*76-064 4.1*  
*02-007 4.2*  
*76-018 2.5*  
*421 4.8*

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.  
PEST/PCB ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

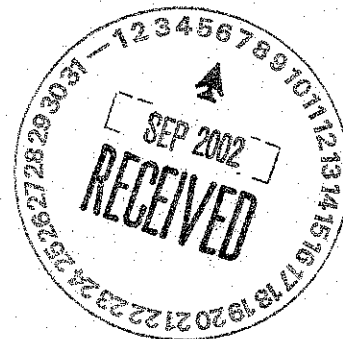
DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B153F8	001	W	02LE0895	07/25/02	08/01/02	08/09/02
B153F8	001 MS	W	02LE0895	07/25/02	08/01/02	08/09/02
B153F8	001 MSD	W	02LE0895	07/25/02	08/01/02	08/09/02
B153F9	002	W	02LE0895	07/25/02	08/01/02	08/09/02
B153H0	003	W	02LE0895	07/25/02	08/01/02	08/09/02
B153H1	004	W	02LE0895	07/25/02	08/01/02	08/09/02
B153H2	005	W	02LE0895	07/25/02	08/01/02	08/09/02
B153H3	006	W	02LE0895	07/25/02	08/01/02	08/09/02

LAB QC:

PBLKWL	MB1	W	02LE0895	N/A	08/01/02	08/09/02
PBLKWL	MB1 BS	W	02LE0895	N/A	08/01/02	08/09/02





## Analytical Report

Client: TNU-HANFORD F02-009  
LVL #: 0207L262  
SDG/SAF #: H1845/F02-057

W.O. #: 11343-606-001-9999-00  
Date Received: 07-26-02


### PESTICIDE

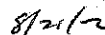
The set of samples consisted of six (6) water samples collected on 07-25-02.

The samples and their associated QC samples were extracted on 08-01-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 08-09-02. The extraction procedure was based on method 3510 and the extracts were analyzed based on method 8081.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. All surrogate recoveries were within acceptance criteria..
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

  
Date

pefr\group\data\pest\tnu hanford\07L-262.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.



GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- 
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

- P** = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D** = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C** = This flag applies to a compound that has been confirmed by GC/MS.

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L-WI-035/A-O4/01

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 08/14/02 15:26

RFW Batch Number: 0207L262

Client: TNUHANFORD F02-009 H1845 Work Order: 11343606001 Page: 1

Cust ID:		B153F8	B153F8	B153F8	B153F9	B153H0	B153H1
Sample RFW#:		001	001 MS	001 MSD	002	003	004
Information Matrix:		WATER	WATER	WATER	WATER	WATER	WATER
D.F.:		1.00	1.00	1.00	1.00	1.00	1.00
Units:		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate:	Tetrachloro-m-xylene	110 %	110 %	115 %	65 %	65 %	75 %
	Decachlorobiphenyl	105 %	110 %	105 %	115 %	105 %	110 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Alpha-BHC		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
Beta-BHC		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
Delta-BHC		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
gamma-BHC (Lindane)		0.052 U	108 %	114 %	0.051 U	0.050 U	0.053 U
Heptachlor		0.052 U	102 %	108 %	0.051 U	0.050 U	0.053 U
Aldrin		0.052 U	102 %	108 %	0.051 U	0.050 U	0.053 U
Heptachlor epoxide		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
Endosulfan I		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
Dieldrin		0.10 U	116 %	119 %	0.10 U	0.10 U	0.11 U
4,4'-DDE		0.10 U	0.20 U	0.21 U	0.10 U	0.10 U	0.11 U
Endrin		0.10 U	122 %	125 %	0.10 U	0.10 U	0.11 U
Endosulfan II		0.10 U	0.20 U	0.21 U	0.10 U	0.10 U	0.11 U
4,4'-DDD		0.10 U	0.20 U	0.21 U	0.10 U	0.10 U	0.11 U
Endosulfan sulfate		0.10 U	0.20 U	0.21 U	0.10 U	0.10 U	0.11 U
4,4'-DDT		0.10 U	103 %	99 %	0.10 U	0.10 U	0.11 U
Methoxychlor		0.52 U	1.0 U	1.1 U	0.51 U	0.50 U	0.53 U
Endrin ketone		0.10 U	0.20 U	0.21 U	0.10 U	0.10 U	0.11 U
Endrin aldehyde		0.10 U	0.20 U	0.21 U	0.10 U	0.10 U	0.11 U
alpha-Chlordane		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
gamma-Chlordane		0.052 U	0.10 U	0.11 U	0.051 U	0.050 U	0.053 U
Toxaphene		5.2 U	10 U	11 U	5.1 U	5.0 U	5.3 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

*Handwritten signature*

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 08/14/02 15:26

RFW Batch Number: 0207L262

Client: TNUHANFORD F02-009 H1845 Work Order: 11343606001 Page: 2

	Cust ID:	B153H2	B153H3	PBLKWL	PBLKWL BS
Sample	RFW#:	005	006	02LE0895-MB1	02LE0895-MB1
Information	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L

Surrogate:	Tetrachloro-m-xylene	60	%	55	%	100	%	85	%
	Decachlorobiphenyl	105	%	100	%	95	%	90	%
		-----fl-----		-----fl-----		-----fl-----		-----fl-----	
Alpha-BHC		0.051	U	0.052	U	0.050	U	0.050	U
Beta-BHC		0.051	U	0.052	U	0.050	U	0.050	U
Delta-BHC		0.051	U	0.052	U	0.050	U	0.050	U
gamma-BHC (Lindane)		0.051	U	0.052	U	0.050	U	106	%
Heptachlor		0.051	U	0.052	U	0.050	U	98	%
Aldrin		0.051	U	0.052	U	0.050	U	98	%
Heptachlor epoxide		0.051	U	0.052	U	0.050	U	0.050	U
Endosulfan I		0.051	U	0.052	U	0.050	U	0.050	U
Dieldrin		0.10	U	0.10	U	0.10	U	114	%
4,4'-DDE		0.10	U	0.10	U	0.10	U	0.10	U
Endrin		0.10	U	0.10	U	0.10	U	118	%
Endosulfan II		0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD		0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate		0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT		0.10	U	0.10	U	0.10	U	99	%
Methoxychlor		0.51	U	0.52	U	0.50	U	0.50	U
Endrin ketone		0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde		0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane		0.051	U	0.052	U	0.050	U	0.050	U
gamma-Chlordane		0.051	U	0.052	U	0.050	U	0.050	U
Toxaphene		5.1	U	5.2	U	5.0	U	5.0	U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

*Post 5/5*



FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

02076262

Client <u>TNU-HANFORD SAFH F02-009</u>	Refrigerator #	1	2	2				2												
Est. Final Proj. Sampling Date	#/Type Container	Liquid	3AG	2AG	4AG	1		1AG												
Project # <u>11343-606-001-9999-00</u>	Solid																			
Project Contact/Phone #	Volume	Liquid	50	6	6	1		500												
Lionville Laboratory Project Manager <u>OJ</u>	Solid																			
QC <u>SPEC</u> Del <u>SRD</u> TAT <u>30 days</u>	Preservatives		-	-	-	-		HNO <sub>3</sub>												
Date Rec'd <u>7-26-02</u> Date Due <u>8-25-02</u>	ANALYSES REQUESTED	ORGANIC						INORG												
		VOA	PCB	BNA	Pest	Herb		PCB	Metal	LA	C									

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (V)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only									
			MS	MSD				H1290	H1520	H1608H	H1608G	H1608X	H1608Y	H1608Z	H1608A	H1608B	H1608C
S - Soil	001	B153 F8			W	72502	0650	3	2	4	1						
SE - Sediment	002	F9					0855	3	2	4	1						
SO - Solid	003	H0					0920	3	2	4	1						
SL - Sludge	004	H1					0950	3	2	4	1						
W - Water	005	H2					1025	3	2	4	1						
O - Oil	006	H3					1055	3	2	4	1						
A - Air	007	H4					0700	3	2	4	1						
DS - Drum																	
DL - Drum																	
L - EP/TCLP																	
WI - Wipe																	
X - Other																	
F - Fish																	

Special Instructions: SAF # F02-009

Run Matrix QC

## DATE/REVISIONS:

- Met ① 1. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,  
2. Mg, Mn, Na, Ni, Sb, V, Zn, Hg  
8-15-02 3. Change OHBG N to OHBG X  
4. \_\_\_\_\_  
5. \_\_\_\_\_  
6. \_\_\_\_\_

## Lionville Laboratory Use Only

Samples were:

1) Shipped ☒ or  
Hand Delivered ☐

Airbill #

2) Ambient or ☒ ☐3) Received in Good Condition ☒ or N4) Samples Properly Preserved ☒ or N5) Received Within Holding Times ☒ or N

Tamper Resistant Seal was:

1) Present on Outer Package ☒ or N2) Unbroken on Outer Package ☒ or N3) Present on Sample ☒ or N4) Unbroken on Sample ☒ or NCOC Record Present Upon Sample Rec't ☒ or NCooler Temp. 4.8 °CCooler Temp. 4.5 °C

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
Paul Se	A. Kandy	7-26-02	0910	COMPOSITE WASTE	ORIGINAL REWRITTEN		
				Discrepancies Between Samples Labels and COC Record? Y or N			
				NOTES:			
				79049856 9747-7			

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				F02-009-001		Page 1 of 2			
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround <b>45 Days</b>			
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>					
Ice Chest No. <b>SEE OSPC</b>		Field Logbook No. <b>WNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>0020186</b>		<b>7-25-02</b>		Bill of Lading/Air Bill No. <b>SEE OSPC</b>					
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. <b>Special Handling and/or Storage</b>		Preservation		Cool 4C	Cool 4C	HNO3 to pH <2	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	
		Type of Container		aGs*	aG	aG	aG	P	P	P	P
		No. of Container(s)		3	2	4	1	1	1	2	1
		Volume		20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL
<b>SAMPLE ANALYSIS</b>		VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)	Pesticides - 8081; Herbicides - 8150A	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium	Tritium - H3	Americium-241	Gross Alpha; Gross Beta	Strontium-89,90 - Total Sr	
		<b>A-C</b>		<b>DE</b>	<b>EF</b> <b>GH</b>	<b>I</b>			<b>4T</b>	<b>7/25/02</b>	
Sample No.	Matrix *	Sample Date	Sample Time								
B153F8	WATER	7/25/02	0650	X	X	X	X				
B153F9	WATER	4T 7/25/02									
B153H0	WATER	4T 7/25/02									
B153H1	WATER	4T 7/25/02									
B153H2	WATER	4T 7/25/02									
<b>CHAIN OF POSSESSION</b>				<b>SPECIAL INSTRUCTIONS</b>				<b>Matrix: *</b> S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Dum Solids DL=Dum Liquids T=Tissue WT=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Greg Thomas		0710		ERC		0710					
7/25/02		7-25-02		R.F.R.		R.F.R.					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
R. F. R.		7-25-02 1400		Fed Ex							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Fed Ex		7-26-02 0910		Thomson		7-26-02 0910					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
<b>LABORATORY SECTION</b>		Received By		Title		Date/Time					
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By		Date/Time					

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				<b>F02-009-001</b>		Page 1 of 2			
Collector GA Thomas, MA Bacchler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days			
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>					
Ice Chest No. SEE OSPC		Field Logbook No. HNF-N-314 1		COA 117546ES10		Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. 707-22-01 R020185		Bill of Lading/Air Bill No. SEE OSPC							
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. <b>Special Handling and/or Storage</b> Cool 4°C			<b>Preservation</b>	Cool 4C	Cool 4C	HNO3 to pH <2	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	
			<b>Type of Container</b>	aGs*	aG	aG	aG	P	P	P	P
			<b>No. of Container(s)</b>	3	2	4	1	1	1	2	1
			<b>Volume</b>	20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL
			<b>SAMPLE ANALYSIS</b>		VOA - 8260A (TCL) A-C	Semi-VOA - 8270A (TCL) D-E	Pesticides - 8081; Herbicides - 8150A FG EH	TCP Metals - 6010A (TAL); Mercury - 7470 (CV); Isotopic Plutonium I	Tritium - H3	Americium-241	Gross Alpha; Gross Beta KT 7/25/02
<b>Sample No.</b>	<b>Matrix *</b>	<b>Sample Date</b>	<b>Sample Time</b>								
B153F8	WATER	8/7 7/25/02									
B153F9	WATER	7/25/02	0855	X	X	X	X				
B153H0	WATER	7/25/02	0920	X	X	X	X				
B153H1	WATER	7/25/02	0950	X	X	X	X				
B153H2	WATER	7/25/02	1025	X	X	X	X				
<b>CHAIN OF POSSESSION</b>				<b>SPECIAL INSTRUCTIONS</b>							
Relinquished By/Removed From Greg Thomas / Mary Thomas FH 7/25/02		Date/Time 1200		Received By/Stored In R. F. Hill		Date/Time 7-25-02		<b>Matrix *</b> S=Soil SE=Sediment SO=Solid SI=Sludge W=Water O=Oil A=Air DS=Dry Solids DL=Dry Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other			
Relinquished By/Removed From R. F. Hill		Date/Time 7-25-02 1400		Received By/Stored In F. Hill		Date/Time					
Relinquished By/Removed From F. Hill		Date/Time 7-26-02 0910		Received By/Stored In F. Hill		Date/Time 7-26-02 0910					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
<b>LABORATORY SECTION</b>		Received By		Title		Date/Time					
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By		Date/Time					

<b>FH-Central Plateau Project</b>				<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				F02-009-001		Page 2 of 2		
Collector GA Thomas, MA Baechler				Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days		
Project Designation ModuTank - Annual Sampling of Purgewater				Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>				
Ice Chest No. <b>SEE O5PC</b>				Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express				
Shipped To EBERLINE SERVICES (Formerly TMA)				Offsite Property No. <b>AQ 20185 MB 7-23-02</b>		Bill of Lading/Air Bill No. <b>SEE O5PC</b>						
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage <b>Cool 4°C</b>				Preservation <b>Cool 4C</b>		Cool 4C	Cool 4C	HNO3 to pH <2	None	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2
				Type of Container aGs*		aG	aG	aG	P	P	P	P
				No. of Container(s)		3	2	4	1	1	2	1
				Volume		20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL
<b>SAMPLE ANALYSIS</b>				VOA - 8260A (TCL) <b>A-C</b>	Semi-VOA - 8270A (TCL) <b>DE</b>	Pesticides - 8081; Herbicides - 8150A <b>FG HI</b>	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium <b>I</b>	Tritium - H3	Americium-241	Gross Alpha Gross Beta <b>7/25/02</b>	Strontium-89,90 -- Total Sr	
Sample No.	Matrix *	Sample Date	Sample Time									
B153H3	WATER	7/25	1655	X	X	X	X					
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
G. Thomas, M. Baechler		7/25/02		R. F. Ollers, R. Baechler		7-25-02						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
R. F. Ollers, R. Baechler		7-25-02		Fed Ex								
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Fed Ex		7-26-02 0910		J. H. ...		7-26-02 0910						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		<b>Matrix *</b> S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wt=Wipe L=Liquid V=Vegetation X=Other				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						
<b>LABORATORY SECTION</b>		Received By		Title				Date/Time				
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By				Date/Time				



<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				<b>F02-009-002</b>		Page 1 of 1													
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days													
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility				SAF No. F02-009		Air Quality <input type="checkbox"/>													
Ice Chest No. <b>SEF03DC</b>		Field Logbook No. <b>NF-N. 314 1</b>		COA 117546ES10		Method of Shipment Federal Express															
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>A020185</b>				Bill of Lading/Air Bill No. <b>SEF03DC</b>															
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage <b>COOL 4°C</b>			Preservation	HCl to pH <2 Cool 4°C																	
			Type of Container	aGs*																	
			No. of Container(s)	3																	
			Volume	40mL																	
<b>SAMPLE ANALYSIS</b>			VOA - 8260A (TCL)																		
			<b>AC</b>																		
Sample No.		Matrix *		Sample Date		Sample Time															
B153H4		WATER		7/25/02		0700		X													
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>								<b>Matrix *</b>  S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue W1=Wipe L=Liquid V=Vegetation X=Other					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Greg Thomas, FH, MA Baechler		1200		R. F. ...		7-25-02															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
R. F. ...		1400		Fed Ex		7-25-02															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Fed Ex		7-26-02 0910		R. F. ...		7-26-02 0910															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time															
<b>LABORATORY SECTION</b>		Received By				Title				Date/Time											
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method				Disposed By				Date/Time											

Contractor <b>BHI-HANFORD</b>	<b>OFF-SITE PROPERTY CONTROL</b>	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) <b>A020185</b>
----------------------------------	--------------------------------------	--

**PART I - TO BE COMPLETED BY ORIGINATOR**

<b>Engineering Support</b>	<b>Field Analytical Support</b>	<b>Field Sampling Support</b>
----------------------------	---------------------------------	-------------------------------

The following items are to be shipped from

☒ Contractor ☐ Vendor

Routing **FED EX**

☒ Prepaid ☐ Collect

Shipped to **RECRA LAB NET**  
 Company **208 WELSH POOL ROAD**  
 Address **LIONVILLE, PA 19341-1333**  
 City **ATTN: ORLETTE JOHNSON**  
 Country **(610) 280-3012**

State Zip Code

Off-site Custodian

On-site Custodian

HID

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 of 6	77165	SML 421 SAF B02-024 and F02-009	
2 of 6	82165	ERC 96-018 SAF F02-009	
3 of 6	75165	ERC 96-014 SAF F02-009	
4 of 6	78165	ERC 02-007 SAF F02-009	
5 of 6	72165	SML 441 SAFF02-009	
6 of 6	74165	ERC 96-064 SAFF02-009 #1 of 6 7905 7105 7415	7415
		#2 of 6 7905 7105 7426	7426

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☐ Required for Project Work. List Project No. \_\_\_\_\_

☐ Business Trip

☐ Off-site Assignment

☐ Shipment to Subcontractor. List Subcontract No. \_\_\_\_\_

☐ Other (Please specify) \_\_\_\_\_

#3 of 6 7904 9856 9203

#4 of 6 7905 7105 7492

#5 of 6 7904 9856 9747

#6 of 6 7905 7105 7573

**ENVIRONMENTAL SAMPLES PACKAGED IN  
POLYCOOLER WITH WET ICE AND DRY SORB**

**CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.**

RM Clearance for Public Release <b>NA</b>	RM Survey No. <b>NA</b>	Date
---	-------------------------	------

Location of and Contact for Property (Name/Phone No./Bldg./Area)

**R. F. Thoren 376-6500 RIKKI THOREN/521-8003/3728 BUILDING/300 AREA**

Date Ready for Shipment <b>7-25-02</b>	Cost Code to be Charged <b>XA 2035 PHMC</b>	Approximate Date This Property will be Returned
Originated By <b>R. F. Thoren</b>	Date <b>7-25-02</b>	Authorized By
Property Representative Signature <b>R. F. Thoren</b>	Date <b>7-25-02</b>	Property Management Approval
		Date

**PART II - TO BE COMPLETED BY SHIPPING**

Authorized Shipping Signature <b>C.R. Nelson</b>	Date <b>7-25-02</b>
---	------------------------

**Priorita Overnight - Friday Delivery**

A-6003-091 (03/01)

**12**

# LIONVILLE LABORATORY INCORPORATED

## SAMPLE RECEIPT CHECKLIST

CLIENT:

*HANFORD*

Purchase Order/Project:

DATE: *7-26-02*

SAF# / SOW# / Release #:

*F02-009*

Laboratory SDG #:

*0207L 262*

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVL Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc faxed or emailed to client?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |

Cooler # / temp and Comments:

*441 4.5*  
*224 2.9*  
*96-064 4.1*  
*02-007 4.2*  
*96-018 2.5*  
*421 4.8*

Laboratory Sample Custodian:

*[Signature]*

Laboratory Project Manager:

Lionville Laboratory, Inc.  
HBG ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B153F8	001	W	02LE0884	07/25/02	07/30/02	08/23/02
B153F9	002	W	02LE0884	07/25/02	07/30/02	08/23/02
B153H0	003	W	02LE0884	07/25/02	07/30/02	08/23/02
B153H1	004	W	02LE0884	07/25/02	07/30/02	08/23/02
B153H2	005	W	02LE0884	07/25/02	07/30/02	08/23/02
B153H3	006	W	02LE0884	07/25/02	07/30/02	08/23/02
B153H3	006 MS	W	02LE0884	07/25/02	07/30/02	08/24/02
B153H3	006 MSD	W	02LE0884	07/25/02	07/30/02	08/24/02

LAB QC:

PBLKYL	MB1	W	02LE0884	N/A	07/30/02	08/23/02
PBLKYL	MB1 BS	W	02LE0884	N/A	07/30/02	08/23/02
PBLKYL	MB1	W	02LE0884	N/A	07/30/02	08/23/02
PBLKYL	MB1 BS	W	02LE0884	N/A	07/30/02	08/23/02





## Analytical Report

Client: TNU-HANFORD F02-009

LVL #: 0207L262

SDG/SAF #: H1845/F02-009

W.O. #: 11343-606-001-9999-00

Date Received: 07-26-02

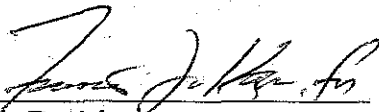
### HERBICIDE

The set of samples consisted of six (6) water samples collected on 07-25-02.

The samples and their associated QC samples were extracted on 07-30-02 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 08-23,24-02. The extraction and analysis procedure was based on method 8151A.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. All results presented in this report are derived from samples that met LVL's sample acceptance policy.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. Four (4) of ten (10) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated



Date

pefr:\group\data\herb\tnu 07L-262.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

# Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0266 391

Initiator: Bryle Spadaro  
 Date: 8/27/02  
 Client: DVO Norland

Batch: 02011262  
 Samples: 001, 003, B, BS  
 Method: SW846/MCAWW/CLP/

Parameter: CHLOR  
 Matrix: Water  
 Prep Batch: 01100884

## 1. Reason for SDR

a. COC Discrepancy ☐ Tech Profile Error ☐ Client Request ☐ Sampler Error on C-O-C  
☐ Transcription Error ☐ Wrong Test Code ☐ Other \_\_\_\_\_

## b. General Discrepancy

☐ Missing Sample/Extract\* ☐ Container Broken ☐ Wrong Sample Pulled ☐ Label ID's Illegible  
☐ Hold Time Exceeded ☐ Insufficient Sample\* ☐ Preservation Wrong ☐ Received Past Hold  
☐ Improper Bottle Type ☐ Not Amenable to Analysis

Note\*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: \_\_\_\_\_

## c. Problem (Include all relevant specific results; attach data if necessary)

① High surrogate recoveries in samples 001, 003, Blank and BS. All other recoveries are good, all samples are clean.

## 2. Known or Probable Causes(s)

## 3. Discussion and Proposed Action

Other Description: Normal

☐ Re-log  
☐ Entire Batch  
☐ Following Samples: \_\_\_\_\_  
☐ Re-leach  
☐ Re-extract  
☐ Re-digest  
☐ Revise EDD  
☐ Change Test Code to \_\_\_\_\_  
☐ Place On/Take Off Hold (circle)

## 4. Project Manager Instructions...signature/date:

☒ Concur with Proposed Action  
☐ Disagree with Proposed Action; See Instruction  
☐ Include in Case Narrative  
☐ Client Contacted:  
 Date/Person \_\_\_\_\_  
☐ Add  
☐ Cancel

## 5. Final Action...signature/date:

Other Explanation:

☒ Verified re-[log][leach][extract][digest][analysis] (circle)  
☒ Included in Case Narrative  
☐ Hard Copy COC Revised  
☐ Electronic COC Revised  
☐ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route Distribution of Completed SDR  
☐ X Initiator  
☒ X Lab General Manager: M. Taylor  
☒ X Project Mgr: Stone/Johnson/Haslett  
☐ X Technical Mgr: Wesson/Daniels  
☐ X QA (file)  
☐ Data Management: Feldman  
☐ Sample Prep: Beegle/Kiger

Route Distribution of Completed SDR  
☐ Metals: Beegle  
☐ Inorganic: Perrone  
☐ GC/LC: Kiger  
☐ MS: Rychlak/Layman  
☐ Log-in: Melnic  
☐ Admin: Soos  
☐ Other: \_\_\_\_\_

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

- U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
- J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
- B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
- E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
- I = Interference.

ABBREVIATIONS

- BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
- BSD = Indicates blank spike duplicate.
- MS = Indicates matrix spike.
- MSD = Indicates matrix spike duplicate.
- DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
- 
- NA = Not Applicable.
- DF = Dilution Factor.
- NR = Not Required.
- SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

- P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
- D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- C = This flag applies to a compound that has been confirmed by GC/MS.

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L-WI-035/A-O4/01



## Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 08/27/02 08:45

RFW Batch Number: 0207L262

Client: TNUHANFORD F02-009 H1845 Work Order: 11343606001 Page: 1

9

	Cust ID:	B153F8	B153F9	B153H0	B153H1	B153H2	B153H3
Sample	RFW#:	001	002	003	004	005	006
Information	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate:	DCAA	127 * %	107 %	134 * %	120 %	86 %	69 %
		=====fl=====	=====fl=====	=====fl=====	=====fl=====	=====fl=====	=====fl=====
2,4-D		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,4,5-TP (Silvex)		0.50 U	0.50 U	0.50 U	0.51 U	0.50 U	0.50 U
2,4,5-T		0.50 U	0.50 U	0.50 U	0.51 U	0.50 U	0.50 U

	Cust ID:	B153H3	B153H3	PBLKYL	PBLKYL BS
Sample	RFW#:	006 MS	006 MSD	02LE0884-MB1	02LE0884-MB1
Information	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L
Surrogate:	DCAA	82 %	88 %	126 * %	144 * %
		=====fl=====	=====fl=====	=====fl=====	=====fl=====
2,4-D		91 %	86 %	1.0 U	130 %
2,4,5-TP (Silvex)		70 %	68 %	0.50 U	129 %
2,4,5-T		80 %	70 %	0.50 U	130 %

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.  
 %= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. \*= Outside of EPA CLP QC

*Handwritten signature*

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



02076262

Client <u>TNU - HANFORD SAF# F02-009</u>	Refrigerator #	1	2	2				2							
Est. Final Proj. Sampling Date	#/Type Container	Liquid	3AG	2AG	4AG			1AG							
Project # <u>11343-606-001-9999-00</u>		Solid													
Project Contact/Phone #	Volume	Liquid	50	L	L			500							
Lionville Laboratory Project Manager <u>OJ</u>		Solid													
QC <u>SPEC</u> Del <u>SCD</u> TAT <u>30 days</u>	Preservatives							<u>HNO3</u>							
Date Rec'd <u>7-26-02</u> Date Due <u>8-25-02</u>	ANALYSES REQUESTED	ORGANIC						INORG							
		VOA	TC	BNA	Pest/	Herb									

MATRIX CODES: S - Soil SE - Sediment SO - Solid SL - Sludge W - Water O - Oil A - Air DS - Drum Solids DL - Drum Liquids L - EP/TCLP Leachate WI - Wipe X - Other F - Fish	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
			MS	MSD				H 0624H	H 0625H	H 0608H	X 0403G 0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	0403G	040

Special Instructions: SAF# F02-009

Run Matrix QC

## DATE/REVISIONS:

- Met ① 1. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,  
2. Mg, Mn, Na, Ni, Sb, V, Zn, Hg  
8-25-02 3. Change OHBGN to OHBGX  
4.  
5.  
6.

## Lionville Laboratory Use Only

Samples were:  
1) Shipped ☒ or Hand Delivered  
Airbill # 300000  
2) Ambient or Chilled  
3) Received in Good Condition ☒ or N  
4) Samples Properly Preserved ☒ or N  
5) Received Within Holding Times ☒ or N

Tamper Resistant Seal was:  
1) Present on Outer Package ☒ or N  
2) Unbroken on Outer Package ☒ or N  
3) Present on Sample ☒ or N  
4) Unbroken on Sample ☒ or N  
COC Record Present Upon Sample Rec'd ☒ or N  
Cooler Temp. 4.8 °C  
4.5

Relinquished by	Received by	Date	Time
<u>Paul Re</u>	<u>R-King</u>	<u>7-26-02</u>	<u>0910</u>

Relinquished by	Received by	Date	Time
<b>COMPOSITE WASTE</b>	<b>ORIGINAL REWRITTEN</b>		

Discrepancies Between Samples Labels and COC Record? Y or N  
NOTES:

77049856 9747-7

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F02-009-001		Page 1 of 2	
Collector GA Thomas, MA Bachler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days	
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility				SAF No. F02-009		Air Quality <input type="checkbox"/>			
Ice Chest No. <b>SEE OSPC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>R020185</b>				Bill of Lading/Air Bill No. <b>SEE OSPC</b>					
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment <b>Special Handling and/or Storage</b>		Preservation <b>COOL 4C</b> <small>HCl and HNO3 to pH &lt; 2</small>		Cool 4C	Cool 4C	HNO3 to pH < 2	None	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2	
		Type of Container aGs*		aG	aG	aG	P	P	P	P	
		No. of Container(s)		3	2	4	1	1	2	1	
		Volume		20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL
SAMPLE ANALYSIS		VOA - 8260A (TCL)	Semi-VOA - 8270A (TCL)	Pesticides - 8081; Herbicides - 8150A	ICP Metals - 6010A (TAL); Mercury - 7470 (CV); Isotopic Plutonium	Trinium - H3	Americium-241	Gross Alpha; Gross Beta	Strontium-89,90 -- Total Sr		
		<b>A-C</b>	<b>DE</b>	<b>EF GH</b>	<b>I</b>			<b>4T</b>	<b>7/25/02</b>		
Sample No.	Matrix *	Sample Date	Sample Time								
B153F8	WATER	7/25/02	0650	X	X	X	X				
B153F9	WATER	4T 7/25/02									
B153H0	WATER	4T 7/25/02									
B153H1	WATER	4T 7/25/02									
B153H2	WATER	4T 7/25/02									
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
G. Thomas, F. H. Thomas		7/25/02 0710		R. F. Hall, R. F. Hall		7-25-02 0710					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
R. F. Hall, R. F. Hall		7-25-02 1400		Fed Ex							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Fed Ex		7-26-02 0910		Thomson		7-26-02 0910					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time					
LABORATORY SECTION		Received By		Title		Date/Time					
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time					

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F02-009-001		Page 1 of 2									
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Protect Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days									
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility				SAF No. F02-009		Air Quality <input type="checkbox"/>											
Ice Chest No. SEK OSPC		Field Logbook No. HNF-N-314 1		COA 117546ES10		Method of Shipment Federal Express													
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. 107-22-02 Rd 20125				Bill of Lading/Air Bill No. SEE OSPC													
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. <b>Special Handling and/or Storage</b> Cool/4°C				<b>Preservation</b>		Cool 4C		Cool 4C		HNO3 to pH <2		HNO3 to pH <2		HNO3 to pH <2		HNO3 to pH <2			
				<b>Type of Container</b>		aGs*		aG		aG		aG		P		P		P	
				<b>No. of Container(s)</b>		3		2		4		1		1		2		1	
				<b>Volume</b>		20mL		1000mL		1000mL		500mL		1000mL		1000mL		1000mL	
				<b>SAMPLE ANALYSIS</b>		VOA - 8260A (TCL) A-C		Semi-VOA - 8270A (TCL) D-E		Pesticides - 8081; Herbicides - 8150A FG EH		ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium I		Tritium - H3		Americium-241		Gross Alpha; Gross Beta GT 7/25/02	
Sample No.		Matrix *		Sample Date		Sample Time													
B458F8		WATER		AT 7/25/02															
B153F9		WATER		7/25/02		0855		X		X		X		X					
B153H0		WATER		7/25/02		0920		X		X		X		X					
B153H1		WATER		7/25/02		0950		X		X		X		X					
B153H2		WATER		7/25/02		1025		X		X		X		X					
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>				<b>Matrix *</b>							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time						S=Soil SB=Soil/ment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other							
Greg Thomas / Mary Thomas		7/25/02 1200		R. F. Hill		7/25/02 1200													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
R. F. Hill		7/25/02 1400		F. J. Ex		7/26/02 0910													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
F. J. Ex		7/26/02 0910		C.		7/26/02 0910													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time													
<b>LABORATORY SECTION</b>		Received By.				Title				Date/Time									
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method				Disposed By				Date/Time									

FH-Central Plateau Project				CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST								F02-009-001		Page 2 of 2			
Collector GA Thomas, MA Bacchler				Company Contact CS Wright				Telephone No. 373-3994				Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days	
Project Designation ModuTank - Annual Sampling of Purgewater				Sampling Location Purgewater Storage and Treatment Facility				SAF No. F02-009				Air Quality <input type="checkbox"/>					
Ice Chest No. <b>SEE OSPC</b>				Field Logbook No. <b>HNF-N-314.1</b>				COA 117546ES10				Method of Shipment Federal Express					
Shipped To EBERLINE SERVICES (Formerly TMA)				Offsite Property No. <b>AQ 20185 MS-7-22-02</b>				Bill of Lading/Air Bill No. <b>SEE OSPC</b>									
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> <b>**Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment.</b> <b>Special Handling and/or Storage</b> <b>Cool 4°C</b>				Preservation <b>Cool 4C</b> <small>HCl to pH &lt; 2 Green</small>		Cool 4C	Cool 4C	HNO3 to pH < 2	None	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2					
				Type of Container <b>aGs*</b>		aG	aG	aG	P	P	P	P					
				No. of Container(s) <b>3</b>		2	4	1	1	1	2	1					
				Volume <b>20mL</b>		1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL					
SAMPLE ANALYSIS				VOA - 8260A (TCL) <b>AC</b>	Semi-VOA - 8270A (TCL) <b>DE</b>	Pesticides - 8081; Herbicides - 8150A <b>FG HI</b>	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium <b>I</b>	Tritium - H3	Americium-241	Gross Alpha; Gross Beta <b>7/25/02</b>	Strontium-89,90 - Total Sr						
Sample No.	Matrix *	Sample Date	Sample Time														
B153H3	WATER	7/25	1655	X	X	X	X										
CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS									
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
G. Thomas		7/25/02		R. F. ...		7-25-02											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
R. F. ...		7-25-02		F. ...													
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
F. ...		7-26-02 0910		J. ...		7-26-02 0910											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time											
LABORATORY SECTION		Received By				Title				Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method				Disposed By				Date/Time							

BHI-EE-011 (03/01/2002)

# LIONVILLE LABORATORY INCORPORATED

## SAMPLE RECEIPT CHECKLIST

CLIENT: *HANFORD*

Purchase Order/Project:

DATE: *7-26-02*

SAF# / SOW# / Release #: *F02-009*

Laboratory SDG #:

*0207C 262*

**NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION**

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LvLI Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc faxed or emailed to client?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |

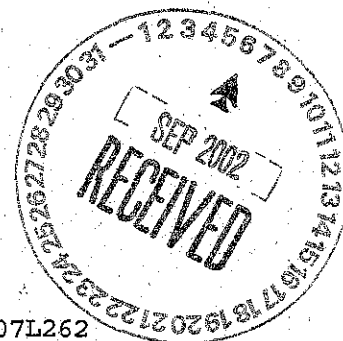
Cooler # / temp and Comments:

*441 4.5*  
*224 2.9*  
*96-064 4.1*  
*02-007 4.2*  
*96-018 2.5*  
*421 4.8*

Laboratory Sample Custodian:

Laboratory Project Manager:

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845



DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B153F8						
SILVER, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
SILVER, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
MERCURY, TOTAL	001	W	02C0251	07/25/02	08/19/02	08/20/02
MERCURY, TOTAL	001 REP	W	02C0251	07/25/02	08/19/02	08/20/02
MERCURY, TOTAL	001 MS	W	02C0251	07/25/02	08/19/02	08/20/02
POTASSIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/28/02
POTASSIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/28/02
MAGNESIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
MAGNESIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
SODIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/28/02
SODIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/28/02
NICKEL, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
NICKEL, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02



Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
VANADIUM, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	001	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	001 REP	W	02L0483	07/25/02	08/21/02	08/22/02

B153F9

SILVER, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
SILVER, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
MERCURY, TOTAL	002	W	02C0251	07/25/02	08/19/02	08/20/02
POTASSIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/28/02
POTASSIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/28/02
MAGNESIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
MAGNESIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
SODIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/28/02
SODIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/28/02
NICKEL, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
NICKEL, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	002	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	002 MS	W	02L0483	07/25/02	08/21/02	08/22/02

B153H0

SILVER, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
MERCURY, TOTAL	003	W	02C0251	07/25/02	08/19/02	08/20/02
POTASSIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/28/02
MAGNESIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
SODIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/28/02
NICKEL, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	003	W	02L0483	07/25/02	08/21/02	08/22/02

B153H1

SILVER, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
MERCURY, TOTAL	004	W	02C0251	07/25/02	08/19/02	08/20/02
POTASSIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/28/02
MAGNESIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
SODIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/28/02
NICKEL, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	004	W	02L0483	07/25/02	08/21/02	08/22/02

B153H2

SILVER, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
ALUMINUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
MERCURY, TOTAL	005	W	02C0251	07/25/02	08/19/02	08/20/02
POTASSIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/28/02
MAGNESIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
SODIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/28/02
NICKEL, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	005	W	02L0483	07/25/02	08/21/02	08/22/02

B153H3

SILVER, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
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Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
BARIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
BERYLLIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
CALCIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
CADMIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
COBALT, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
CHROMIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
COPPER, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
IRON, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
MERCURY, TOTAL	006	W	02C0251	07/25/02	08/19/02	08/20/02
POTASSIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/28/02
MAGNESIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
MANGANESE, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
SODIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/28/02
NICKEL, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
ANTIMONY, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
VANADIUM, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02
ZINC, TOTAL	006	W	02L0483	07/25/02	08/21/02	08/22/02

LAB QC:

SILVER LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
SILVER, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
ALUMINUM LABORTORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
ALUMINUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
BARIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
BARIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
BERYLLIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
BERYLLIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
CALCIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
CALCIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
CADMIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
CADMIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
COBALT LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
COBALT, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
CHROMIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
CHROMIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
COPPER LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F02-009 H1845

DATE RECEIVED: 07/26/02

LVL LOT # :0207L262

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COPPER, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
IRON LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
IRON, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
MERCURY LABORATORY	LC1 BS	W	02C0251	N/A	08/19/02	08/20/02
MERCURY, TOTAL	MB1	W	02C0251	N/A	08/19/02	08/20/02
POTASSIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
POTASSIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
MAGNESIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
MAGNESIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
MANGANESE LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
MANGANESE, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
SODIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
SODIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
NICKEL LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
NICKEL, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
ANTIMONY LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
ANTIMONY, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
VANADIUM LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
VANADIUM, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02
ZINC LABORATORY	LC1 BS	W	02L0483	N/A	08/21/02	08/22/02
ZINC, TOTAL	MB1	W	02L0483	N/A	08/21/02	08/22/02



## Analytical Report

**Client:** TNU-HANFORD F02-009  
**LVL#:** 0207L262  
**SDG/SAF#:** H1845/F02-009

**W.O.#:** 11343-606-001-9999-00  
**Date Received:** 07-26-02

### METALS CASE NARRATIVE

1. This narrative covers the analyses of 6 water samples.
2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

All samples except B153F8 had a pH of approximately 9, per pH paper check. The analyst added 2 mL of concentrated Nitric Acid and waited more than 16 hours before removing an aliquot. After the waiting period, the pH was again checked, and found to be approximately 7 on the pH scale. No additional acid was added and digestion began as holding times were getting close.

3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy, with the exception of pH.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% (80-120% for Mercury) control limits.
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL, or average  $\pm 3$  standard deviation).
7. The preparation/method blanks for 3 analytes were outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

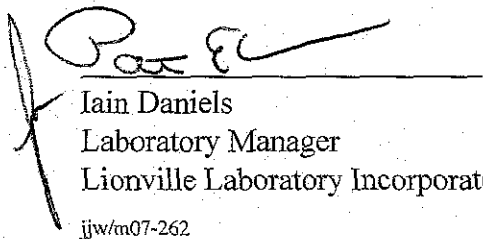
a). The MB results for Aluminum and Zinc were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and all samples read less than 20 times the MB concentration. The MB result for Sodium was greater than the PQL and only sample B153F8 read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were reported herein "uncorrected" for the levels found in the MB.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 27 pages.

8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration level for the following analytes:

<u>Sample ID</u>	<u>Element</u>	<u>PDS</u>	<u>PDS</u>
		<u>Concentration (ppb)</u>	<u>% Recovery</u>
B153F9	Potassium	50,000	93.8

12. The duplicate analyses for 6 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

  
Iain Daniels  
Laboratory Manager  
Lionville Laboratory Incorporated

jjw/m07-262

08-29-02  
Date

# METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0207L262

Leaching Procedure: 1310 1311 1312 Other: \_\_\_\_\_

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: X3005A 3010A 3015 3020A 3050B 3051 200.7 SS17  
Other: \_\_\_\_\_

## Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Antimony	<u>X6010B</u> <u>7041<sup>5</sup></u>	<u>200.7</u> <u>204.2</u>			<u>99</u>
Arsenic	<u>6010B</u> <u>7060A<sup>5</sup></u>	<u>200.7</u> <u>206.2</u>	<u>3113B</u>		<u>99</u>
Barium	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Beryllium	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Bismuth	<u>6010B<sup>1</sup></u>	<u>200.7<sup>1</sup></u>		<u>1620</u>	<u>99</u>
Boron	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Cadmium	<u>X6010B</u> <u>7131A<sup>5</sup></u>	<u>200.7</u> <u>213.2</u>			<u>99</u>
Calcium	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Chromium	<u>X6010B</u> <u>7191<sup>5</sup></u>	<u>200.7</u> <u>218.2</u>			<u>SS17</u>
Cobalt	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Copper	<u>X6010B</u> <u>7211<sup>5</sup></u>	<u>200.7</u> <u>220.2</u>			<u>99</u>
Iron	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Lead	<u>6010B</u> <u>7421<sup>5</sup></u>	<u>200.7</u> <u>239.2</u>	<u>3113B</u>		<u>99</u>
Lithium	<u>6010B</u> <u>7430<sup>4</sup></u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Magnesium	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Manganese	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Mercury	<u>X7470A<sup>3</sup></u> <u>7471A<sup>3</sup></u>	<u>245.1<sup>2</sup></u> <u>245.5<sup>2</sup></u>			<u>99</u>
Molybdenum	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Nickel	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Potassium	<u>X6010B</u> <u>7610<sup>4</sup></u>	<u>200.7</u> <u>258.1<sup>4</sup></u>			<u>99</u>
Rare Earths	<u>6010B<sup>1</sup></u>	<u>200.7<sup>1</sup></u>		<u>1620</u>	<u>99</u>
Selenium	<u>6010B</u> <u>7740<sup>5</sup></u>	<u>200.7</u> <u>270.2</u>	<u>3113B</u>		<u>99</u>
Silicon	<u>6010B<sup>1</sup></u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silica	<u>6010B</u>	<u>200.7</u>		<u>1620</u>	<u>99</u>
Silver	<u>X6010B</u> <u>7761<sup>5</sup></u>	<u>200.7</u> <u>272.2</u>			<u>99</u>
Sodium	<u>X6010B</u> <u>7770<sup>4</sup></u>	<u>200.7</u> <u>273.1<sup>4</sup></u>			<u>99</u>
Strontium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Thallium	<u>6010B</u> <u>7841<sup>5</sup></u>	<u>200.7</u> <u>279.2</u> <u>200.9</u>			<u>99</u>
Tin	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Titanium	<u>6010B</u>	<u>200.7</u>			<u>99</u>
Uranium	<u>6010B<sup>1</sup></u>	<u>200.7<sup>1</sup></u>		<u>1620</u>	<u>99</u>
Vanadium	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Zinc	<u>X6010B</u>	<u>200.7</u>			<u>99</u>
Zirconium	<u>6010B<sup>1</sup></u>	<u>200.7<sup>1</sup></u>		<u>1620</u>	<u>99</u>

Other: \_\_\_\_\_

Method: \_\_\_\_\_



# METHOD REFERENCES AND DATA QUALIFIERS

## DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- \* = Indicates that the original sample result is greater than 4x the spike amount added.

## ABBREVIATIONS

- MB = Method or Preparation Blank.  
MS = Matrix Spike.  
MSD = Matrix Spike Duplicate.  
REP = Sample Replicate  
LCS = Laboratory Control Sample.  
NC = Not calculated.

## ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0207L262

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DILUTION
					LIMIT	FACTOR
-001	B153F8	Silver, Total	0.50 u	UG/L	0.50	1.0
		Aluminum, Total	8.0 u	UG/L	8.0	1.0
		Barium, Total	0.90	UG/L	0.10	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	156	UG/L	37.0	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	1.1	UG/L	0.50	1.0
		Copper, Total	1.5	UG/L	0.30	1.0
		Iron, Total	14.5 u	UG/L	14.5	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	586	u UG/L	586	1.0
		Magnesium, Total	36.3	UG/L	5.6	1.0
		Manganese, Total	0.70	UG/L	0.10	1.0
		Sodium, Total	459	UG/L	19.1	1.0
		Nickel, Total	0.90 u	UG/L	0.90	1.0
		Antimony, Total	2.2 u	UG/L	2.2	1.0
		Vanadium, Total	0.70 u	UG/L	0.70	1.0
		Zinc, Total	13.7	UG/L	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0207L262

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-002	B153F9	Silver, Total	1.9	UG/L	0.50	1.0
		Aluminum, Total	45.2	UG/L	8.0	1.0
		Barium, Total	46.8	UG/L	0.10	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	2950	UG/L	37.0	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	3.9	UG/L	0.70	1.0
		Chromium, Total	3.2	UG/L	0.50	1.0
		Copper, Total	3.0	UG/L	0.30	1.0
		Iron, Total	94.4	UG/L	14.5	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	6660000	UG/L	11700	20.0
		Magnesium, Total	58000	UG/L	5.6	1.0
		Manganese, Total	64.3	UG/L	0.10	1.0
		Sodium, Total	1800000	UG/L	382	20.0
		Nickel, Total	193	UG/L	0.90	1.0
		Antimony, Total	5.8	UG/L	2.2	1.0
		Vanadium, Total	0.87	UG/L	0.70	1.0
		Zinc, Total	19.4	UG/L	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845

LVL LOT #: 0207L262

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-003	B153H0	Silver, Total	3.2	UG/L	0.50	1.0
		Aluminum, Total	25.9	UG/L	8.0	1.0
		Barium, Total	49.6	UG/L	0.10	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	2970	UG/L	37.0	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	4.3	UG/L	0.70	1.0
		Chromium, Total	3.0	UG/L	0.50	1.0
		Copper, Total	2.9	UG/L	0.30	1.0
		Iron, Total	83.7	UG/L	14.5	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	6900000	UG/L	11700	20.0
		Magnesium, Total	58600	UG/L	5.6	1.0
		Manganese, Total	64.7	UG/L	0.10	1.0
		Sodium, Total	1870000	UG/L	382	20.0
		Nickel, Total	195	UG/L	0.90	1.0
		Antimony, Total	6.6	UG/L	2.2	1.0
		Vanadium, Total	1.3	UG/L	0.70	1.0
		Zinc, Total	9.3	UG/L	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0207L262

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-004	B153H1	Silver, Total	1.3	UG/L	0.50	1.0
		Aluminum, Total	14.1	UG/L	8.0	1.0
		Barium, Total	47.1	UG/L	0.10	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	2990	UG/L	37.0	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	3.3	UG/L	0.70	1.0
		Chromium, Total	2.3	UG/L	0.50	1.0
		Copper, Total	2.2	UG/L	0.30	1.0
		Iron, Total	90.7	UG/L	14.5	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	6730000	UG/L	11700	20.0
		Magnesium, Total	59900	UG/L	5.6	1.0
		Manganese, Total	65.6	UG/L	0.10	1.0
		Sodium, Total	1820000	UG/L	382	20.0
		Nickel, Total	198	UG/L	0.90	1.0
		Antimony, Total	8.0	UG/L	2.2	1.0
		Vanadium, Total	1.1	UG/L	0.70	1.0
		Zinc, Total	39.2	UG/L	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845

LVL LOT #: 0207L262

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-005	B153H2	Silver, Total	1.4	UG/L	0.50	1.0
		Aluminum, Total	8.0	u UG/L	8.0	1.0
		Barium, Total	46.9	UG/L	0.10	1.0
		Beryllium, Total	0.10	u UG/L	0.10	1.0
		Calcium, Total	3050	UG/L	37.0	1.0
		Cadmium, Total	0.30	u UG/L	0.30	1.0
		Cobalt, Total	4.7	UG/L	0.70	1.0
		Chromium, Total	3.6	UG/L	0.50	1.0
		Copper, Total	2.5	UG/L	0.30	1.0
		Iron, Total	280	UG/L	14.5	1.0
		Mercury, Total	0.10	u UG/L	0.10	1.0
		Potassium, Total	6890000	UG/L	11700	20.0
		Magnesium, Total	60700	UG/L	5.6	1.0
		Manganese, Total	72.4	UG/L	0.10	1.0
		Sodium, Total	1860000	UG/L	382	20.0
		Nickel, Total	201	UG/L	0.90	1.0
		Antimony, Total	6.5	UG/L	2.2	1.0
		Vanadium, Total	1.3	UG/L	0.70	1.0
		Zinc, Total	10.1	UG/L	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845

LVL LOT #: 0207L262

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-006	B153H3	Silver, Total	0.50 u	UG/L	0.50	1.0
		Aluminum, Total	11.7	UG/L	8.0	1.0
		Barium, Total	46.4	UG/L	0.10	1.0
		Beryllium, Total	0.10 u	UG/L	0.10	1.0
		Calcium, Total	2940	UG/L	37.0	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	4.3	UG/L	0.70	1.0
		Chromium, Total	1.9	UG/L	0.50	1.0
		Copper, Total	1.6	UG/L	0.30	1.0
		Iron, Total	105	UG/L	14.5	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	6700000	UG/L	11700	20.0
		Magnesium, Total	60600	UG/L	5.6	1.0
		Manganese, Total	65.1	UG/L	0.10	1.0
		Sodium, Total	1810000	UG/L	382	20.0
		Nickel, Total	199	UG/L	0.90	1.0
		Antimony, Total	4.8	UG/L	2.2	1.0
		Vanadium, Total	0.80	UG/L	0.70	1.0
		Zinc, Total	29.6	UG/L	0.40	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/29/02

CLIENT: TNUHANFORD F02-009 H1845

LVL LOT #: 0207L262

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK1	02L0483-MB1	Silver, Total	0.50 u	UG/L	0.50	1.0
		Aluminum, Total	75.5	UG/L	8.0	1.0
		Barium, Total	0.27	UG/L	0.10	1.0
		Beryllium, Total	0.23	UG/L	0.10	1.0
		Calcium, Total	37.0 u	UG/L	37.0	1.0
		Cadmium, Total	0.30 u	UG/L	0.30	1.0
		Cobalt, Total	0.70 u	UG/L	0.70	1.0
		Chromium, Total	0.66	UG/L	0.50	1.0
		Copper, Total	0.30 u	UG/L	0.30	1.0
		Iron, Total	14.5 u	UG/L	14.5	1.0
		Potassium, Total	27.8	UG/L	20.4	1.0
		Magnesium, Total	5.7	UG/L	5.6	1.0
		Manganese, Total	0.28	UG/L	0.10	1.0
		Sodium, Total	65.8	UG/L	2.7	1.0
		Nickel, Total	0.90 u	UG/L	0.90	1.0
		Antimony, Total	2.4	UG/L	2.2	1.0
		Vanadium, Total	0.70 u	UG/L	0.70	1.0
		Zinc, Total	7.4	UG/L	0.40	1.0
BLANK1	02C0251-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0



Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845

LVL LOT #: 0207L262

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B153F8	Mercury, Total	0.96	0.10u	1.0	95.7	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0207L262

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
=====	=====	=====	=====	=====	=====	=====	=====
-002	B153F9	Silver, Total	55.7	1.9	50.0	107.6	1.0
		Aluminum, Total	2110	45.2	2000	103.0	1.0
		Barium, Total	1870	46.8	2000	91.0	1.0
		Beryllium, Total	49.9	0.10u	50.0	99.8	1.0
		Calcium, Total	27400	2950	25000	97.9	1.0
		Cadmium, Total	51.5	0.30u	50.0	103.0	1.0
		Cobalt, Total	521	3.9	500	103.4	1.0
		Chromium, Total	203	3.2	200	99.7	1.0
		Copper, Total	257	3.0	250	101.8	1.0
		Iron, Total	1080	94.4	1000	98.7	1.0
		Potassium, Total	6720000	6660000	25000	263.9*	20.0
		Magnesium, Total	81000	58000	25000	91.9	1.0
		Manganese, Total	570	64.3	500	101.1	1.0
		Sodium, Total	1830000	1800000	25000	122.1*	20.0
		Nickel, Total	672	193	500	95.9	1.0
		Antimony, Total	532	5.8	500	105.2	1.0
		Vanadium, Total	504	0.87	500	100.7	1.0
		Zinc, Total	572	19.4	500	110.6	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845

LVL LOT #: 0207L262

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL	REPLICATE RPD		DILUTION
			RESULT			FACTOR (REP)
=====	=====	=====	=====	=====	=====	=====
-001REP	B153F8	Silver, Total	0.50u	0.50u	NC	1.0
		Aluminum, Total	8.0 u	8.0 u	NC	1.0
		Barium, Total	0.90	1.1	20.0	1.0
		Beryllium, Total	0.10u	0.10u	NC	1.0
		Calcium, Total	156	102	41.9	1.0
		Cadmium, Total	0.30u	0.30u	NC	1.0
		Cobalt, Total	0.70u	0.70u	NC	1.0
		Chromium, Total	1.1	0.50u	NC	1.0
		Copper, Total	1.5	1.1	30.8	1.0
		Iron, Total	14.5 u	14.5 u	NC	1.0
		Mercury, Total	0.10u	0.10u	NC	1.0
		Potassium, Total	586 u	586 u	NC	1.0
		Magnesium, Total	36.3	10.4	110.9	1.0
		Manganese, Total	0.70	0.57	20.5	1.0
		Sodium, Total	459	450	2.0	1.0
		Nickel, Total	0.90u	0.90u	NC	1.0
		Antimony, Total	2.2 u	2.2 u	NC	1.0
		Vanadium, Total	0.70u	0.70u	NC	1.0
		Zinc, Total	13.7	4.5	101.1	1.0

200  
8/29/02

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 08/29/02

CLIENT: TNUHANFORD F02-009 H1845  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0207L262

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
-----	-----	-----	-----	-----	-----	-----
LCS1	02L0483-LC1	Silver, LCS	494	500	UG/L	98.8
		Aluminum, LCS	5150	5000	UG/L	103.0
		Barium, LCS	5080	5000	UG/L	101.6
		Beryllium, LCS	260	250	UG/L	104.1
		Calcium, LCS	26000	25000	UG/L	104.1
		Cadmium, LCS	260	250	UG/L	104.1
		Cobalt, LCS	2540	2500	UG/L	101.6
		Chromium, LCS	513	500	UG/L	102.5
		Copper, LCS	1240	1250	UG/L	99.4
		Iron, LCS	5020	5000	UG/L	100.3
		Potassium, LCS	25500	25000	UG/L	102.2
		Magnesium, LCS	25500	25000	UG/L	101.8
		Manganese, LCS	782	750	UG/L	104.3
		Sodium, LCS	24300	25000	UG/L	97.1
		Nickel, LCS	2080	2000	UG/L	103.8
		Antimony, LCS	3020	3000	UG/L	100.8
		Vanadium, LCS	2550	2500	UG/L	101.8
		Zinc, LCS	1010	1000	UG/L	100.8
LCS1	02C0251-LC1	Mercury, LCS	5.4	5.0	UG/L	107.8

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS



Client TNU - HANFORD SAF # F02-009

Est. Final Proj. Sampling Date \_\_\_\_\_

Project # 11343-606-001-9999-00

Project Contact/Phone # \_\_\_\_\_

Lionville Laboratory Project Manager OJ

QC SPEC Del 5ED TAT 30 days

Date Rec'd 7-26-02 Date Due 8-25-02

Refrigerator # 1 2 2

#/Type Container Liquid 3AG 2AG 4AG

Volume 50 1 1

Preservatives - - -

ANALYSES REQUESTED TOC VOA TC BNA Pest Herb

ORGANIC INORG

Metals HA CN

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓)		Matrix	Date Collected	Time Collected	Lionville Laboratory Use Only									
			MS	MSD				0624H	0625H	0608H	0408G	0408G	0408G	0408G	0408G	0408G	0408G
S - Soil	001	B 153 F8			W	7-25-02	0650	3	2	4	1						
SE - Sediment	002	F9			I		0755	3	2	4	1						
SO - Solid	003	H0			I		0920	3	2	4	1						
SL - Sludge	004	H1			I		0950	3	2	4	1						
W - Water	005	H2			I		1025	3	2	4	1						
O - Oil	006	H3			I		1055	3	2	4	1						
A - Air	007	H4			I		0700	3	2	4	1						
DS - Drum Solids																	
DL - Drum Liquids																	
L - EP/TCLP Leachate																	
WI - Wipe																	
X - Other																	
F - Fish																	

Special Instructions: SAF # F02-009Run Matrix QC

DATE/REVISIONS:

MET ① 1. Al, Ag, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K,2. Mg, Mn, Na, Ni, Sb, V, Zn, Hg8-15-02 3. Change 0408G to 0408X

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

Lionville Laboratory Use Only

Samples were: 1) Shipped or Hand DeliveredAirbill # See Labels2) Ambient or Shaded3) Received in Good Condition ① or N4) Samples Properly Preserved ① or N5) Received Within Holding Times ① or NTampor Resistant Seal was: 1) Present on Outer Package or N2) Unbroken on Outer Package or N3) Present on Sample or N4) Unbroken on Sample or NCOC Record Present Upon Sample Rec'd ① or NCooler Temp. 4.8 °C4.5

Relinquished by	Received by	Date	Time
<u>[Signature]</u>	<u>[Signature]</u>	<u>7-26-02</u>	<u>0910</u>

Relinquished by	Received by	Date	Time
<u>COMPOSITE WASTE</u>	<u>ORIGINAL REWRITTEN</u>		

Discrepancies Between Samples Labels and COC Record? Y or ①NOTES: 779049856 9747-7

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>						<b>F02-009-001</b>		Page 1 of 2		
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days		
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility				SAF No. F02-009		Air Quality <input type="checkbox"/>				
Ice Chest No. <b>SEE OSPC</b>		Field Logbook No. <b>HNF-N-314 1</b>		COA 117546ES10		Method of Shipment Federal Express						
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>0220185</b>				Bill of Lading/Air Bill No. <b>SEE OSPC</b>						
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage				Preservation <b>COOL 4C</b> HCl to pH < 2		Cool 4C	Cool 4C	HNO3 to pH < 2	None	HNO3 to pH < 2	HNO3 to pH < 2	HNO3 to pH < 2
				Type of Container aGs*		aG	aG	aG	P	P	P	P
				No. of Container(s)		1	2	4	1	1	2	1
				Volume		20mL	100mL	1000mL	500mL	1000mL	1000mL	1000mL
<b>SAMPLE ANALYSIS</b>				VOA - R260A (TCL)	Semi-VOA - R270A (TCL)	Pesticides - 9081; Herbicides - 8150A	ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium	Tritium - H3	Americium-241	Gross Alpha; Gross Beta	Strontium-89,90 - Total Sr	
				<b>A-C</b>	<b>DE</b>	<b>EF</b> <b>6.14</b>	<b>J</b>			<b>AT</b>	<b>7/25/02</b>	
Sample No.	Matrix *	Sample Date	Sample Time									
B153F8	WATER	7/25/02	0650	X	X	X	X					
B153F9	WATER	<b>AT</b> 7/25/02										
B153H0	WATER	<b>AT</b> 7/25/02										
B153H1	WATER	<b>AT</b> 7/25/02										
B153H2	WATER	<b>AT</b> 7/25/02										
<b>CHAIN OF POSSESSION</b>				<b>SPECIAL INSTRUCTIONS</b>				<b>Matrix *</b> S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue Wt=Wipe L=Liquid V=Vegetation X=Other				
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
Gives Thomas, E.L.		7/25/02 0710	P.F. Lee		7-25-02							
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
R. F. Lee		7-25-02 1400	Fred E. Lee									
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
Fred E. Lee		7-26-02 0910	[Signature]		7-26-02 0910							
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
Relinquished By/Removed From		Date/Time	Received By/Stored In		Date/Time							
<b>LABORATORY SECTION</b>		Received By		Title		Date/Time						
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By		Date/Time						

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				<b>F02-009-001</b>		Page 1 of 2													
Collector: GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days													
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>															
Ice Chest No. SEE OSPC		Field Logbook No. HNF-N-314 1		COA 117546ES10		Method of Shipment Federal Express															
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. 7057-21-02		Bill of Lading/Air Bill No. RD20185		SEE OSPC															
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage Cool 4°C				<b>Preservation</b>		Cool 4C		Cool 4C		HNO3 to pH <2		None		HNO3 to pH <2		HNO3 to pH <2		HNO3 to pH <2			
				<b>Type of Container</b>		aGs*		aG		aG		aG		P		P		P		P	
				<b>No. of Container(s)</b>		3		2		4		1		1		1		2		1	
				<b>Volume</b>		20mL		1000mL		1000mL		500mL		1000mL		1000mL		1000mL		1000mL	
<b>SAMPLE ANALYSIS</b>				VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)		Pesticides - 8081; Herbicides - 8150A		ICP Metals - 6010A (TAL); Mercury - 7470 - (CV); Isotopic Plutonium		Tritium - H3		Americium-241		Gross Alpha; Gross Beta		Strontium-89,90 - Total Sr			
				A-C		D-E		FG		I											
<b>Sample No.</b>		<b>Matrix *</b>		<b>Sample Date</b>		<b>Sample Time</b>															
B153F8		WATER		7/25/02		0855		X		X		X		X							
B153F9		WATER		7/25/02		0920		X		X		X		X							
B153H0		WATER		7/25/02		0950		X		X		X		X							
B153H1		WATER		7/25/02		1025		X		X		X		X							
B153H2		WATER		7/25/02				X		X		X		X							
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>								<b>Matrix *</b> S=Soil SE=Sediment SO=Solid SL=Sludge W = Water O=Oil A=Air DS=Dry Solids DL=Drum Liquids T=Tissue WT=Wipe L=Liquid V=Vegetation X=Other					
Relinquished By/Removed From Greg Thomas / Mary Thomas				Date/Time 7/25/02 1200				Received By/Stored In R. Fuller				Date/Time 7-25-02									
Relinquished By/Removed From R. Fuller				Date/Time 7-25-02 1400				Received By/Stored In R. Fuller				Date/Time 7-25-02									
Relinquished By/Removed From R. Fuller				Date/Time 7-26-02 0910				Received By/Stored In R. Fuller				Date/Time 7-26-02 0910									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
<b>LABORATORY SECTION</b>		Received By		Title		Date/Time															
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By		Date/Time															

## FH-Central Plateau Project

## CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F02-009-001

Page 2 of 2

Collector  
C/A Thomas, MIA BaechlerContractor Contact  
CS Wright  
Telephone No.  
373-3994Project Coordinator  
TRENT, SJ

Price Code 7N

Data Turnaround  
45 DaysProject Destination  
Modular - Annual Sampling of PurgewaterSampling Location  
Purgewater Storage and Treatment FacilitySAF No.  
F02-009Air Quality ☐

Ice Chest No.

SEE O5PC

Field Notebook No.  
HNF-N-314 1COA  
117546ES10Method of Shipment  
Federal ExpressShipped To  
EBERLINE SERVICES (Formerly TMA)Onsite Property No.  
A020185 #00000000

Bill of Lading/Air Bill No.

SEE O5PC

## POSSIBLE SAMPLE HAZARDS/REMARKS

\*\*Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF and screen for off-site shipment.

Special Handling and/or Storage

C001400

## SAMPLE ANALYSIS

Sample No.

Matrix \*

Sample Date

Sample Time

B153H3

WATER

7/25

1055

X

X

X

X

## CHAIN OF POSSESSION

Sign/Print Names

## SPECIAL INSTRUCTIONS

Relinquished By/Removed From

Date/Time

Received By/Stored In

Date/Time

Date/Time

Date/Time

Date/Time

Date/Time

Date/Time

Relinquished By/Removed From

Date/Time

Received By/Stored In

Date/Time

Date/Time

Date/Time

Date/Time

Date/Time

Date/Time

Relinquished By/Removed From

Date/Time

Received By/Stored In

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Relinquished By/Removed From

Date/Time

Received By/Stored In

Date/Time

Date/Time

Date/Time

Date/Time

Date/Time

Date/Time

2341-EE-011 (03/01/2002)



<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>				F02-009-002		Page 1 of 1								
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N Data Turnaround <b>45 Days</b>								
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		SAF No. F02-009		Air Quality <input type="checkbox"/>										
Ice Chest No. <b>SEF03DC</b>		Field Logbook No. <b>NMF-N. 314 1</b>		COA 117546ES10		Method of Shipment Federal Express										
Shipped To ERERLINE SERVICES (Formerly TMA)		Offsite Property No. <b>A020185</b>		Bill of Lading/Air Bill No. <b>SEF03DC</b>												
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage <b>cool 4°C</b>			Preservation	HCl to pH <2 Cool 4°C												
			Type of Container	aCis*												
			No. of Container(s)	3												
			Volume	40mL												
<b>SAMPLE ANALYSIS</b>			VOA - 8260A (TCL)													
			<b>A-C</b>													
Sample No.	Matrix *	Sample Date	Sample Time													
B153H4	WATER	7/25/02	0700	X												
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>				<b>Matrix *</b> S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other				
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Greg Thomas F.H. Baechler		7/25/02		R.F. Johnson		7-25-02										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
K.F. Johnson		7-25-02		Fed Ex												
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Fed Ex		7-26-02 0910		R. Thomas		7-26-02 0910										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time										
LABORATORY SECTION		Received By		Title		Date/Time										
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time										

# LIONVILLE LABORATORY INCORPORATED

## SAMPLE RECEIPT CHECKLIST

CLIENT: *H. H. Ford*  
Purchase Order/Project:

DATE: *7-26-02*

SAF# / SOW# / Release #: *F02-009*

Laboratory SDG #:

*0207L 262*

NOTE: ALL ENTRIES MARKED "NO" MUST BE EXPLAINED IN THE COMMENT SECTION

- |  |   |                             |   |  |
|--|---|-----------------------------|---|--|
| 1. Custody seals on coolers or shipping container intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 2. Outside of coolers or shipping containers are free from damage?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 3. Airbill # recorded?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 4. All expected paperwork received (coc and other client specific: historical data, alpha/beta or other screening data as applicable)? (paperwork sealed in plastic bag and taped to inside lid) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 5. Sample containers are intact?   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 6. Custody seals on sample containers intact, signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 7. All samples on coc received?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 8. All sample label information matches coc?   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 9. Laboratory QC samples designated on coc? (QC stickers placed on bottles?)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 10. Shipment meets LVLJ Sample Acceptance Policy? (identify all bottles not within policy. See reverse side for policy)  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 11. Where applicable, bar code labels are affixed to coc?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A | <input type="checkbox"/> see Comment # |
| 12. coc signed and dated?  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 13. coc faxed or emailed to client?  | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |
| 14. Project Manager/Client contacted concerning discrepancies? (name/date)   | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input type="checkbox"/> N/A            | <input type="checkbox"/> see Comment # |

Cooler # / temp and Comments:

*441 4.5*  
*224 2.9*  
*96-064 4.1*  
*02-007 4.2*  
*96-018 2.5*  
*421 4.8*

Laboratory Sample Custodian:

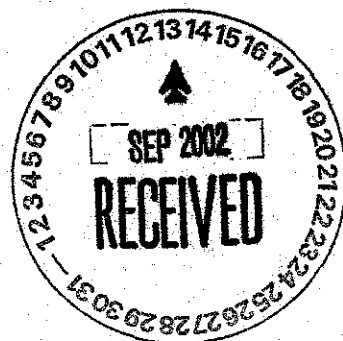
Laboratory Project Manager:



# EBERLINE SERVICES

September 12, 2002

Mr. Steve Trent  
Fluor Hanford, Inc.  
825 Jadwin Avenue  
Richland, WA 99352



Reference: **P.O. #630**  
**Eberline Services R2-07-105-7314, SDG H1845**

Dear Mr. Trent:

Enclosed is the data report for six water samples designated under SAF No. F02-009 received at Eberline Services on July 29, 2002. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion  
Program Manager

MCM

Enclosure: Data Package

Analytical Services  
2030 Wright Avenue  
P.O. Box 4040  
Richmond, California 94804-0040  
(510) 235-2633 Fax (510) 235-0438  
Toll Free (800) 841-5487  
[www.eberlineservices.com](http://www.eberlineservices.com)

## 1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1845 was composed of six water samples designated under SAF No. F02-009 with a Project Designations of: ModuTank – Annual Sampling of Purgewater

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

## 2.0 ANALYSIS NOTES

### 2.1 Gross Alpha and Gross Beta Analyses

Due to the high salt concentrations in the water samples, aliquots (0.01 L) had to be decreased in order to reduce the dissolved solids on the counting planchets (maximum of 250 mg). No other problems were encountered during the course of the analyses.

### 2.2 Tritium Analyses

The LCS and method blank were not scaled to the nominal aliquot of 0.01 L. No problems were encountered during the course of the analyses.

### 2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

### 2.4 Americium-241 Analyses

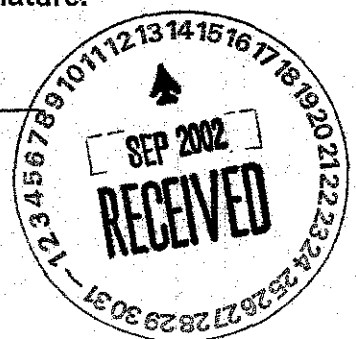
Due to the high salt concentrations in the water samples, aliquots (0.05 L) had to be reduced in order to perform the Am-241 analysis. No other problems were encountered during the course of the analyses.

## Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."

  
Melissa C. Mannion  
Program Manager

9/12/02  
Date



EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 630  
Case no SDG\_H1845

S U M M A R Y   D A T A   S E C T I O N

T A B L E   O F   C O N T E N T S	
About this section	1
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Work Summary	6
Method Blanks	8
Lab Control Samples	9
Duplicates	10
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Data Sheets	12
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Melissa Mannion  
Prepared by

Melissa Mannion  
Reviewed by

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 09/12/02

# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG\_H1845

### ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

#### SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

#### PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

#### WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

#### METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

#### LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

#### REPORT GUIDES

Page 1

#### SUMMARY DATA SECTION

Page 1

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 09/12/02

# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## ABOUT THE DATA SUMMARY SECTION

### DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

### MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

### DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

### METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

### REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

### REPORT GUIDES

Page 2

### SUMMARY DATA SECTION

Page 2

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

## SAMPLE SUMMARY

SDG 7314

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H1845

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B153F8	Purge. Storage & Treat.	WATER		R207105-06	F02-009	F02-009-001	07/25/02 06:50
B153F9	Purge. Storage & Treat.	WATER		R207105-01	F02-009	F02-009-001	07/25/02 08:55
B153H0	Purge. Storage & Treat.	WATER		R207105-02	F02-009	F02-009-001	07/25/02 09:20
B153H1	Purge. Storage & Treat.	WATER		R207105-03	F02-009	F02-009-001	07/25/02 09:50
B153H2	Purge. Storage & Treat.	WATER		R207105-04	F02-009	F02-009-001	07/25/02 10:25
B153H3	Purge. Storage & Treat.	WATER		R207105-05	F02-009	F02-009-001	07/25/02 10:55
Method Blank		WATER		R207105-08	F02-009		
Lab Control Sample		WATER		R207105-07	F02-009		
Duplicate (R207105-03)	Purge. Storage & Treat.	WATER		R207105-09	F02-009		07/25/02 09:50
Spike (R207105-03)	Purge. Storage & Treat.	WATER		R207105-10	F02-009		07/25/02 09:50

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CS

Version 3.06

Report date 09/12/02



# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

## QC SUMMARY

SDG 7314

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG H1845

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7314	F02-009-001	B153F8	WATER		5.0 L		07/29/02	4	R207105-06	7314-006
		B153F9	WATER		5.0 L		07/29/02	4	R207105-01	7314-001
		B153H0	WATER		5.0 L		07/29/02	4	R207105-02	7314-002
		B153H1	WATER		5.0 L		07/29/02	4	R207105-03	7314-003
		B153H2	WATER		5.0 L		07/29/02	4	R207105-04	7314-004
		B153H3	WATER		5.0 L		07/29/02	4	R207105-05	7314-005
		Method Blank	WATER						R207105-08	7314-008
		Lab Control Sample	WATER						R207105-07	7314-007
		Duplicate (R207105-03)	WATER		5.0 L		07/29/02	4	R207105-09	7314-009
		Spike (R207105-03)	WATER		5.0 L		07/29/02	4	R207105-10	7314-010

QC SUMMARY

Page 1

SUMMARY DATA SECTION

Page 4

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-QS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314

Contact Melissa C. Mannion

## PREP BATCH SUMMARY

Client Hanford

Contract No. 630

Case no SDG H1845

TEST	MATRIX	METHOD	PREPARATION	ERROR	PLANCHETS ANALYZED					QUALI-	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG
Alpha Spectroscopy											
AM	WATER	Americium 241 in Water	7036-178	5.0	6			1	1	1/1	
Beta Counting											
SR	WATER	Total Strontium in Water	7036-178	10.0	6			1	1	1/1	
Gas Proportional Counting											
93A	WATER	Gross Alpha in Water	7036-178	20.0	6			1	1	1/1	
93B	WATER	Gross Beta in Water	7036-178	15.0	6			1	1	1/1	
Liquid Scintillation Counting											
H	WATER	Tritium in Water	7036-178	10.0	6			1	1	1/1	1/1 X

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

PREP BATCH SUMMARY

Page 1

SUMMARY DATA SECTION

Page 5

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-PBS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## WORK SUMMARY

Client Hanford  
Contract No. 630  
Case no SDG H1845

CLIENT SAMPLE ID		MATRIX	LAB SAMPLE ID		TEST	SUF-		REVIEWED	BY	METHOD
LOCATION	CUSTODY		COLLECTED	PLANCHET		FIX	ANALYZED			
	SAF No		RECEIVED							
B153F8			R207105-06	7314-006	93A/93		09/10/02	09/12/02	MCM	Gross Alpha in Water
Purge. Storage & Treat.		WATER	07/25/02	7314-006	93B/93		09/10/02	09/12/02	MCM	Gross Beta in Water
F02-009-001	F02-009		07/29/02	7314-006	AM		09/05/02	09/12/02	MCM	Americium 241 in Water
				7314-006	H		09/11/02	09/12/02	MCM	Tritium in Water
				7314-006	SR		09/10/02	09/12/02	MCM	Total Strontium in Water
B153F9			R207105-01	7314-001	93A/93		09/10/02	09/12/02	MCM	Gross Alpha in Water
Purge. Storage & Treat.		WATER	07/25/02	7314-001	93B/93		09/10/02	09/12/02	MCM	Gross Beta in Water
F02-009-001	F02-009		07/29/02	7314-001	AM		09/05/02	09/12/02	MCM	Americium 241 in Water
				7314-001	H		09/11/02	09/12/02	MCM	Tritium in Water
				7314-001	SR		09/10/02	09/12/02	MCM	Total Strontium in Water
B153H0			R207105-02	7314-002	93A/93		09/11/02	09/12/02	MCM	Gross Alpha in Water
Purge. Storage & Treat.		WATER	07/25/02	7314-002	93B/93		09/10/02	09/12/02	MCM	Gross Beta in Water
F02-009-001	F02-009		07/29/02	7314-002	AM		09/05/02	09/12/02	MCM	Americium 241 in Water
				7314-002	H		09/11/02	09/12/02	MCM	Tritium in Water
				7314-002	SR		09/10/02	09/12/02	MCM	Total Strontium in Water
B153H1			R207105-03	7314-003	93A/93		09/11/02	09/12/02	MCM	Gross Alpha in Water
Purge. Storage & Treat.		WATER	07/25/02	7314-003	93B/93		09/10/02	09/12/02	MCM	Gross Beta in Water
F02-009-001	F02-009		07/29/02	7314-003	AM		09/05/02	09/12/02	MCM	Americium 241 in Water
				7314-003	H		09/11/02	09/12/02	MCM	Tritium in Water
				7314-003	SR		09/10/02	09/12/02	MCM	Total Strontium in Water
B153H2			R207105-04	7314-004	93A/93		09/10/02	09/12/02	MCM	Gross Alpha in Water
Purge. Storage & Treat.		WATER	07/25/02	7314-004	93B/93		09/10/02	09/12/02	MCM	Gross Beta in Water
F02-009-001	F02-009		07/29/02	7314-004	AM		09/05/02	09/12/02	MCM	Americium 241 in Water
				7314-004	H		09/11/02	09/12/02	MCM	Tritium in Water
				7314-004	SR		09/10/02	09/12/02	MCM	Total Strontium in Water
B153H3			R207105-05	7314-005	93A/93		09/10/02	09/12/02	MCM	Gross Alpha in Water
Purge. Storage & Treat.		WATER	07/25/02	7314-005	93B/93		09/10/02	09/12/02	MCM	Gross Beta in Water
F02-009-001	F02-009		07/29/02	7314-005	AM		09/05/02	09/12/02	MCM	Americium 241 in Water
				7314-005	H		09/11/02	09/12/02	MCM	Tritium in Water
				7314-005	SR		09/10/02	09/12/02	MCM	Total Strontium in Water

WORK SUMMARY

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Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CWS  
Version 3.06  
Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314

Contact Melissa C. Mannion

## WORK SUMMARY, cont.

Client Hanford

Contract No. 630

Case no SDG H1845

CLIENT SAMPLE ID	MATRIX	LAB SAMPLE ID	COLLECTED	SUF-	ANALYZED	REVIEWED	BY	METHOD
LOCATION		RECEIVED	PLANCHET	TEST	FIX			
CUSTODY	SAF No							
Method Blank		R207105-08	7314-008	93A/93	09/10/02	09/12/02	MCM	Gross Alpha in Water
	WATER		7314-008	93B/93	09/10/02	09/12/02	MCM	Gross Beta in Water
	F02-009		7314-008	AM	09/05/02	09/12/02	MCM	Americium 241 in Water
			7314-008	H	09/11/02	09/12/02	MCM	Tritium in Water
			7314-008	SR	09/10/02	09/12/02	MCM	Total Strontium in Water
Lab Control Sample		R207105-07	7314-007	93A/93	09/11/02	09/12/02	MCM	Gross Alpha in Water
	WATER		7314-007	93B/93	09/11/02	09/12/02	MCM	Gross Beta in Water
	F02-009		7314-007	AM	09/05/02	09/12/02	MCM	Americium 241 in Water
			7314-007	H	09/11/02	09/12/02	MCM	Tritium in Water
			7314-007	SR	09/10/02	09/12/02	MCM	Total Strontium in Water
Duplicate (R207105-03)		R207105-09	7314-009	93A/93	09/11/02	09/12/02	MCM	Gross Alpha in Water
Purge, Storage & Treat.	WATER	07/25/02	7314-009	93B/93	09/11/02	09/12/02	MCM	Gross Beta in Water
	F02-009	07/29/02	7314-009	AM	09/05/02	09/12/02	MCM	Americium 241 in Water
			7314-009	H	09/11/02	09/12/02	MCM	Tritium in Water
			7314-009	SR	09/10/02	09/12/02	MCM	Total Strontium in Water
Spike (R207105-03)		R207105-10	7314-010	H	09/11/02	09/12/02	MCM	Tritium in Water
Purge, Storage & Treat.	WATER	07/25/02						
	F02-009	07/29/02						

## COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
93A/93	F02-009	Gross Alpha in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
93B/93	F02-009	Gross Beta in Water	900.0_ALPHABETA_GPC	6			1	1	1		9
AM	F02-009	Americium 241 in Water	AMCMISO_IE_PLATE_AEA	6			1	1	1		9
H	F02-009	Tritium in Water	906.0_H3_LSC	6			1	1	1	1	10
SR	F02-009	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	6			1	1	1		9
TOTALS				30			5	5	5	1	46

WORK SUMMARY

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CWS

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Report date 09/12/02

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H1845**

R207105-08

Method Blank

**METHOD BLANK**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-08</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7314-008</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.334	0.54	0.83	3.0	U	93A
Gross Beta	12587-47-2	0.078	1.1	1.8	4.0	U	93B
Tritium	10028-17-8	<u>-11.1</u>	9.1	16	400	U	H
Total Strontium	SR-RAD	-0.169	0.23	0.52	2.0	U	SR
Americium 241	14596-10-2	0	0.47	<u>1.8</u>	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

QC-BLANK 42516

**METHOD BLANKS**

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/12/02</u>

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

R207105-07

Lab Control Sample

## LAB CONTROL SAMPLE

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
Lab sample id <u>R207105-07</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7314-007</u>	Material/Matrix <u>WATER</u>	
	SAF No <u>F02-009</u>	

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	63.0	4.7	1.1	3.0		93A	71.3	2.9	88	71-129	80-120
Gross Beta	74.0	3.7	2.6	4.0		93B	78.3	3.1	95	77-123	80-120
Tritium	230	16	16	400	J	H	234	9.4	98	81-119	80-120
Total Strontium	45.9	1.9	0.63	2.0		SR	45.0	1.8	102	82-118	80-120
Americium 241	194	17	1.6	1.0		AM	210	8.4	92	85-115	80-120

ModuTank-Annual Sampl. of Purgewater

QC-LCS 42515

LAB CONTROL SAMPLES

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>09/12/02</u>

**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H1845

R207105-09

B153H1

**DUPLICATE**

SDG <u>7314</u>		Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>		Case no <u>No. 630</u>	
<b>DUPLICATE</b>	<b>ORIGINAL</b>		
Lab sample id <u>R207105-09</u>	Lab sample id <u>R207105-03</u>	Client sample id <u>B153H1</u>	
Dept sample id <u>7314-009</u>	Dept sample id <u>7314-003</u>	Location/Matrix <u>Purge. Storage &amp; Treat. WATER</u>	
	Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 09:50 5.0 L</u>	
		Custody/SAF No <u>F02-009-001</u> <u>F02-009</u>	

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	42.9	120	<u>100</u>	3.0	U	93A	96.9	74	<u>97</u>	U	-	
Gross Beta	5980	180	<u>66</u>	4.0		93B	6220	190	<u>78</u>		4	32
Tritium	6430	230	<u>160</u>	400		H	6490	230	<u>160</u>		1	23
Total Strontium	-0.062	0.45	<u>0.91</u>	2.0	U	SR	0.211	0.42	<u>0.82</u>	U	-	
Americium 241	0	0.65	<u>2.5</u>	1.0	U	AM	0	0.49	<u>1.9</u>	U	-	

ModuTank-Annual Sampl. of Purgewater

QC-DUP#3 42517

DUPLICATES

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>09/12/02</u>

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

R207105-10

B153H1

## MATRIX SPIKE

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Case no <u>No. 630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R207105-10</u>	Lab sample id <u>R207105-03</u>	Client sample id <u>B153H1</u>
Dept sample id <u>7314-010</u>	Dept sample id <u>7314-003</u>	Location/Matrix <u>Purge. Storage &amp; Treat. WATER</u>
	Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 09:50</u> <u>5.0 L</u>
		Custody/SAF No <u>F02-009-001</u> <u>F02-009</u>

ANALYTE	SPIKE pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ADDED pCi/L	2 $\sigma$ ERR pCi/L	ORIGINAL pCi/L	2 $\sigma$ ERR (COUNT)	REC 3 $\sigma$ LMTS % (TOTAL)	PROTOCOL LIMITS
Tritium	24000	420	160	400	X	H	18200	730	6490	230	96 78-122	60-140

ModuTank-Annual Sampl. of Purgewater

QC-MS#3 42518

MATRIX SPIKES

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>09/12/02</u>



**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H1845**

R207105-06

B153F8

**DATA SHEET**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-06</u>	Client sample id <u>B153F8</u>	
Dept sample id <u>7314-006</u>	Location/Matrix <u>Purge, Storage &amp; Treat.</u>	<u>WATER</u>
Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 06:50</u>	<u>5.0 L</u>
	Custody/SAF No <u>F02-009-001</u>	<u>F02-009</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.055	0.36	0.70	3.0	U	93A
Gross Beta	12587-47-2	-0.633	1.1	1.9	4.0	U	93B
Tritium	10028-17-8	23.3	95	160	400	U	H
Total Strontium	SR-RAD	-0.105	0.25	0.54	2.0	U	SR
Americium 241	14596-10-2	0	0.53	<u>2.0</u>	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

DATA SHEETS

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H1845**

R207105-01

B153F9

**DATA SHEET**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-01</u>	Client sample id <u>B153F9</u>	
Dept sample id <u>7314-001</u>	Location/Matrix <u>Purge. Storage &amp; Treat.</u>	<u>WATER</u>
Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 08:55</u>	<u>5.0 L</u>
	Custody/SAF No <u>F02-009-001</u>	<u>F02-009</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	80.6	<u>120</u>	<u>95</u>	3.0	U	93A
Gross Beta	12587-47-2	6340	180	<u>60</u>	4.0		93B
Tritium	10028-17-8	6480	230	160	400		H
Total Strontium	SR-RAD	-0.201	0.24	0.53	2.0	U	SR
Americium 241	14596-10-2	0.261	1.0	<u>2.0</u>	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H1845**

R207105-02

B153H0

**DATA SHEET**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-02</u>	Client sample id <u>B153H0</u>	
Dept sample id <u>7314-002</u>	Location/Matrix <u>Purge. Storage &amp; Treat.</u>	<u>WATER</u>
Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 09:20</u>	<u>5.0 L</u>
	Custody/SAF No <u>F02-009-001</u>	<u>F02-009</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	61.1	79	<u>130</u>	3.0	U	93A
Gross Beta	12587-47-2	6280	180	<u>66</u>	4.0		93B
Tritium	10028-17-8	6350	230	160	400		H
Total Strontium	SR-RAD	0.021	0.24	0.50	2.0	U	SR
Americium 241	14596-10-2	0	1.3	<u>2.5</u>	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H1845**

R207105-03

B153H1

**D A T A   S H E E T**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-03</u>	Client sample id <u>B153H1</u>	
Dept sample id <u>7314-003</u>	Location/Matrix <u>Purge. Storage &amp; Treat. WATER</u>	
Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 09:50</u> <u>5.0 L</u>	
	Custody/SAP No <u>F02-009-001</u> <u>F02-009</u>	

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	96.9	74	<u>97</u>	3.0	U	93A
Gross Beta	12587-47-2	6220	190	<u>78</u>	4.0		93B
Tritium	10028-17-8	6490	230	160	400		H
Total Strontium	SR-RAD	0.211	0.42	0.82	2.0	U	SR
Americium 241	14596-10-2	0	0.49	<u>1.9</u>	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
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**EBERLINE SERVICES / RICHMOND**

**SAMPLE DELIVERY GROUP H1845**

**R207105-04**

**B153H2**

**DATA SHEET**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-04</u>	Client sample id <u>B153H2</u>	
Dept sample id <u>7314-004</u>	Location/Matrix <u>Purge. Storage &amp; Treat.</u>	<u>WATER</u>
Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 10:25</u>	<u>5.0 L</u>
	Custody/SAF No <u>F02-009-001</u>	<u>F02-009</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-16.3	89	99	3.0	U	93A
Gross Beta	12587-47-2	5620	180	92	4.0		93B
Tritium	10028-17-8	6420	230	160	400		H
Total Strontium	SR-RAD	-0.221	0.24	0.55	2.0	U	SR
Americium 241	14596-10-2	0.245	0.98	1.9	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

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Report date <u>09/12/02</u>

**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H1845**

R207105-05

B153H3

**DATA SHEET**

SDG <u>7314</u>	Client/Case no <u>Hanford</u>	SDG <u>H1845</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R207105-05</u>	Client sample id <u>B153H3</u>	
Dept sample id <u>7314-005</u>	Location/Matrix <u>Purge. Storage &amp; Treat.</u>	<u>WATER</u>
Received <u>07/29/02</u>	Collected/Volume <u>07/25/02 10:55</u>	<u>5.0 L</u>
	Custody/SAF No <u>F02-009-001</u>	<u>F02-009</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	22.9	120	<u>100</u>	3.0	U	93A
Gross Beta	12587-47-2	6280	180	<u>80</u>	4.0		93B
Tritium	10028-17-8	6440	230	<u>160</u>	400		H
Total Strontium	SR-RAD	0.019	0.24	<u>0.50</u>	2.0	U	SR
Americium 241	14596-10-2	-0.524	0.53	<u>2.0</u>	1.0	U	AM

ModuTank-Annual Sampl. of Purgewater

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H1845

Test AM Matrix WATER

SDG 7314

Contact Melissa C. Mannion

**METHOD SUMMARY**

AMERICIUM 241 IN WATER

ALPHA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG H1845

**RESULTS**

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Americium PLANCHET	241
Preparation batch 7036-178					
B153F8	R207105-06		7314-006	U	
B153F9	R207105-01		7314-001	U	
B153H0	R207105-02		7314-002	U	
B153H1	R207105-03		7314-003	U	
B153H2	R207105-04		7314-004	U	
B153H3	R207105-05		7314-005	U	
BLK (QC ID=42516)	R207105-08		7314-008	U	
LCS (QC ID=42515)	R207105-07		7314-007	ok	
Duplicate (R207105-03)	R207105-09		7314-009	-	U

Nominal values and limits from method RDLs (pCi/L) 1.0  
ModuTank-Annual Sampl. of Purgewater

**METHOD PERFORMANCE**

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7036-178 2σ prep error 5.0 % Reference Lab Notebook 7036 pg. 178																
B153F8	R207105-06			2.0	0.0500			75		120			42	09/05/02	09/05	SS-048
B153F9	R207105-01			2.0	0.0500			82		116			42	09/05/02	09/05	SS-042
B153H0	R207105-02			2.5	0.0500			61		120			42	09/05/02	09/05	SS-043
B153H1	R207105-03			1.9	0.0500			77		120			42	09/05/02	09/05	SS-044
B153H2	R207105-04			1.9	0.0500			77		120			42	09/05/02	09/05	SS-045
B153H3	R207105-05			2.0	0.0500			76		120			42	09/05/02	09/05	SS-047
BLK (QC ID=42516)	R207105-08			1.8	0.0500			82		120				09/05/02	09/05	SS-055
LCS (QC ID=42515)	R207105-07			1.6	0.0500			89		121				09/05/02	09/05	SS-050
Duplicate (R207105-03) (QC ID=42517)	R207105-09			2.5	0.0500			61		121			42	09/05/02	09/05	SS-056

Nominal values and limits from method 1.0 0.0500 20-105 100 100 180

**METHOD SUMMARIES**

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test AM Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY, cont.

AMERICIUM 241 IN WATER

ALPHA SPECTROSCOPY

Client Hanford

Contract No. 630

Contract SDG H1845

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 3
	CP-008	Heavy Element Electroplating, rev 7

AVERAGES $\pm$ 2 SD	MDA	<u>2.0</u>	$\pm$	<u>0.60</u>
FOR 9 SAMPLES	YIELD	<u>76</u>	$\pm$	<u>19</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02



**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H1845

Test SR Matrix WATER  
SDG 7314  
Contact Melissa C. Mannion

**METHOD SUMMARY**

TOTAL STRONTIUM IN WATER  
BETA COUNTING

Client Hanford  
Contract No. 630  
Contract SDG H1845

**RESULTS**

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Strontium
Preparation batch 7036-178					
B153F8	R207105-06			7314-006	U
B153F9	R207105-01			7314-001	U
B153H0	R207105-02			7314-002	U
B153H1	R207105-03			7314-003	U
B153H2	R207105-04			7314-004	U
B153H3	R207105-05			7314-005	U
BLK (QC ID=42516)	R207105-08			7314-008	U
LCS (QC ID=42515)	R207105-07			7314-007	ok
Duplicate (R207105-03)	R207105-09			7314-009	- U

Nominal values and limits from method RDLs (pCi/L) 2.0  
ModuTank-Annual Sampl. of Purgewater

**METHOD PERFORMANCE**

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7036-178 2σ prep error 10.0 % Reference Lab Notebook 7036 pg. 178																
B153F8	R207105-06			0.54	0.500			97		100			47	09/10/02	09/10	GRB-206
B153F9	R207105-01			0.53	0.500			96		100			47	09/10/02	09/10	GRB-201
B153H0	R207105-02			0.50	0.500			97		100			47	09/10/02	09/10	GRB-202
B153H1	R207105-03			0.82	<u>0.300</u>			98		100			47	09/10/02	09/10	GRB-203
B153H2	R207105-04			0.55	0.500			91		100			47	09/10/02	09/10	GRB-204
B153H3	R207105-05			0.50	0.500			96		100			47	09/10/02	09/10	GRB-205
BLK (QC ID=42516)	R207105-08			0.52	0.500			96		100				09/10/02	09/10	GRB-207
LCS (QC ID=42515)	R207105-07			0.63	0.500			96		100				09/10/02	09/10	GRB-207
Duplicate (R207105-03) (QC ID=42517)	R207105-09			0.91	<u>0.300</u>			99		100			47	09/10/02	09/10	GRB-208

Nominal values and limits from method 2.0 0.500 100 180

METHOD SUMMARIES

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# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test SR Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY, cont.

TOTAL STRONTIUM IN WATER

BETA COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-501	Strontium in Water Samples, rev 4

AVERAGES $\pm$ 2 SD	MDA	<u>0.61</u>	$\pm$	<u>0.30</u>
FOR 9 SAMPLES	YIELD	<u>96</u>	$\pm$	<u>4</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test 93A Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

## RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Alpha
Preparation batch 7036-178					
B153F8	R207105-06	93		7314-006	U
B153F9	R207105-01	93		7314-001	80.6 U
B153H0	R207105-02	93		7314-002	61.1 U
B153H1	R207105-03	93		7314-003	96.9 U
B153H2	R207105-04	93		7314-004	U
B153H3	R207105-05	93		7314-005	22.9 U
BLK (QC ID=42516)	R207105-08	93		7314-008	U
LCS (QC ID=42515)	R207105-07	93		7314-007	ok
Duplicate (R207105-03)	R207105-09	93		7314-009	- U

Nominal values and limits from method RDLs (pCi/L) 3.0  
ModuTank-Annual Sampl. of Purgewater

## METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU- TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7036-178 2σ prep error 20.0 % Reference Lab Notebook 7036 pg. 178																
B153F8	R207105-06	93		0.70	0.300			4		100			47	09/09/02	09/10	GRB-111
B153F9	R207105-01	93		95	0.0100			226		100			47	09/09/02	09/10	GRB-101
B153H0	R207105-02	93		130	0.0100			224		100			48	09/09/02	09/11	GRB-115
B153H1	R207105-03	93		97	0.0100			226		100			48	09/09/02	09/11	GRB-116
B153H2	R207105-04	93		99	0.0100			216		100			47	09/09/02	09/10	GRB-114
B153H3	R207105-05	93		100	0.0100			228		100			47	09/09/02	09/10	GRB-110
BLK (QC ID=42516)	R207105-08	93		0.83	0.300			21		100				09/09/02	09/10	GRB-109
LCS (QC ID=42515)	R207105-07	93		1.1	0.300			22		100				09/09/02	09/11	GRB-114
Duplicate (R207105-03) (QC ID=42517)	R207105-09	93		100	0.0100			220		100			48	09/09/02	09/11	GRB-102

Nominal values and limits from method 3.0 0.300 5-250 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test 93A Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY, cont.

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

PROCEDURES REFERENCE 900.0\_ALPHABETA\_GPC  
CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES  $\pm 2$  SD MDA 69  $\pm$  100  
FOR 9 SAMPLES RESIDUE 154  $\pm$  208

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test 93B Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

## RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Gross Beta
------------------	------------------	-----------------	------------------	------------

Preparation batch 7036-178

B153F8	R207105-06	93	7314-006	U
B153F9	R207105-01	93	7314-001	6340
B153H0	R207105-02	93	7314-002	6280
B153H1	R207105-03	93	7314-003	6220
B153H2	R207105-04	93	7314-004	5620
B153H3	R207105-05	93	7314-005	6280
BLK (QC ID=42516)	R207105-08	93	7314-008	U
LCS (QC ID=42515)	R207105-07	93	7314-007	ok
Duplicate (R207105-03)	R207105-09	93	7314-009	ok

Nominal values and limits from method RDLs (pCi/L) 4.0  
ModuTank-Annual Sampl. of Purgewater

## METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA L	ALIQ FAC	PREP TION	DILU- mg	RESID %	EFF min	COUNT keV	FWHM keV	DRIFT HELD	DAYS PREPARED	ANAL- YZED	DETECTOR
------------------	------------------	-----------------	---------------	----------	-------------	--------------	-------------	------------	------------	--------------	-------------	---------------	------------------	---------------	----------

Preparation batch 7036-178 2σ prep error 15.0 % Reference Lab Notebook 7036 pg. 178

B153F8	R207105-06	93	1.9	0.300			4		100			47	09/09/02	09/10	GRB-111
B153F9	R207105-01	93	60	0.0100			226		100			47	09/09/02	09/10	GRB-101
B153H0	R207105-02	93	66	0.0100			224		100			47	09/09/02	09/10	GRB-102
B153H1	R207105-03	93	78	0.0100			226		100			47	09/09/02	09/10	GRB-105
B153H2	R207105-04	93	92	0.0100			216		100			47	09/09/02	09/10	GRB-114
B153H3	R207105-05	93	80	0.0100			228		100			47	09/09/02	09/10	GRB-110
BLK (QC ID=42516)	R207105-08	93	1.8	0.300			21		100				09/09/02	09/10	GRB-109
LCS (QC ID=42515)	R207105-07	93	2.6	0.300			22		100				09/09/02	09/11	GRB-114
Duplicate (R207105-03) (QC ID=42517)	R207105-09	93	66	0.0100			220		100			48	09/09/02	09/11	GRB-102

Nominal values and limits from method 4.0 0.300 5-250 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

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Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test 93B Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY, cont.

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

PROCEDURES REFERENCE 900.0\_ALPHABETA\_GPC

CP-120 Gross Alpha and Gross Beta in Water, rev 5

AVERAGES  $\pm$  2 SD

MDA 50  $\pm$  74

FOR 9 SAMPLES

RESIDUE 154  $\pm$  208

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test H Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

## RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Tritium
Preparation batch 7036-178				
B153F8	R207105-06	7314-006	U	
B153F9	R207105-01	7314-001	6480	
B153H0	R207105-02	7314-002	6350	
B153H1	R207105-03	7314-003	6490	
B153H2	R207105-04	7314-004	6420	
B153H3	R207105-05	7314-005	6440	
BLK (QC ID=42516)	R207105-08	7314-008	U	
LCS (QC ID=42515)	R207105-07	7314-007	ok	J
Duplicate (R207105-03)	R207105-09	7314-009	ok	
Spike (R207105-03)	R207105-10	7314-010	ok	X

Nominal values and limits from method RDLs (pCi/L) 400  
ModuTank-Annual Sampl. of Purgewater

## METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7036-178 2σ prep error 10.0 % Reference Lab Notebook 7036 pg. 178																
B153F8	R207105-06		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
B153F9	R207105-01		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
B153H0	R207105-02		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
B153H1	R207105-03		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
B153H2	R207105-04		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
B153H3	R207105-05		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
BLK (QC ID=42516)	R207105-08		16	1.00				10		120				09/10/02	09/11	LSC-007
LCS (QC ID=42515)	R207105-07		16	1.00				10		120				09/10/02	09/11	LSC-007
Duplicate (R207105-03) (QC ID=42517)	R207105-09		160	0.0100				100		120			48	09/10/02	09/11	LSC-007
Spike (R207105-03) (QC ID=42518)	R207105-10		160	0.0500				20		120			48	09/10/02	09/11	LSC-007
Nominal values and limits from method 400 0.0100 25 180																

METHOD SUMMARIES

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Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02

# EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1845

Test H Matrix WATER

SDG 7314

Contact Melissa C. Mannion

## METHOD SUMMARY, cont.

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford

Contract No. 630

Contract SDG H1845

PROCEDURES	REFERENCE	906.0_H3_LSC
	CP-210	Tritium in Water Samples by Distillation, rev 6

AVERAGES $\pm$ 2 SD	MDA <u>130</u> $\pm$ <u>120</u>
FOR 10 SAMPLES	YIELD <u>74</u> $\pm$ <u>84</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 09/12/02



# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

## SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- \* LAB SAMPLE ID is the lab's primary identification for a sample.
- \* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- \* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- \* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- \* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

### PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- \* The preparation batches are shown in the same order as the Method Summary Reports are printed.
- \* Only analyses of planchets relevant to the SDG are included.
- \* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- \* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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#### SUMMARY DATA SECTION

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Lab id TMANC  
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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

## WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- \* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- \* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- \* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- \* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- \* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- \* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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### SUMMARY DATA SECTION

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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

## DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- \* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- \* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- \* ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- \* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- \* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are labdefined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- \* An MDA is underlined if it is bigger than its RDL.

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### SUMMARY DATA SECTION

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Protocol Hanford  
Version Ver 1.0  
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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## DATA SHEET

- \* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- \* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- \* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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SUMMARY DATA SECTION

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Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

### LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  1. The error of RESULT, including that introduced by rounding the result prior to printing.  
  
If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
  2. The error of ADDED.
  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are, protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

#### REPORT GUIDES

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#### SUMMARY DATA SECTION

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Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 09/12/02

# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

### DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- \* The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:
  1. A fixed percentage specified in the protocol.

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#### SUMMARY DATA SECTION

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Lab id TMANC  
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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- \* The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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### SUMMARY DATA SECTION

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Report date 09/12/02

# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford  
Contract No. 630  
Case no SDG H1845

### MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- \* An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- \* REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- \* The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- \* The second limits are protocol defined upper and lower QC limits

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#### SUMMARY DATA SECTION

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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- \* The recovery is underlined (out of spec) if it is outside either of these ranges.

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SUMMARY DATA SECTION

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Protocol Hanford  
Version Ver 1.0  
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# EBERLINE SERVICES / RICHMOND

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SDG 7314

Contact Melissa C. Mannion

## REPORT GUIDE

Client Hanford

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Case no SDG H1845

## METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- \* Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- \* The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- \* If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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SDG 7314  
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GUIDE, cont.

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## METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

\* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

\* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.

\* Aliquots are underlined if less than the nominal value specified for the method.

\* Preparation factors are underlined if greater than the nominal value specified for the method.

\* Dilution factors are underlined if greater than the nominal value specified for the method.

\* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

\* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

\* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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### SUMMARY DATA SECTION

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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

SDG 7314  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## METHOD SUMMARY

- \* Count times are underlined if less than the nominal value specified for the method.
- \* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- \* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- \* Days Held are underlined if greater than the holding time specified in the protocol.
- \* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1+3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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### SUMMARY DATA SECTION

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# EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H1845

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Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 630  
Case no SDG H1845

## METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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### SUMMARY DATA SECTION

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Form DVD-RG  
Version 3.06  
Report date 09/12/02

<b>FH-Central Plateau Project</b>		<b>CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST</b>						F02-009-001		Page 1 of 2											
<b>Collector</b> GA Thomas, MA Baechler		<b>Company Contact</b> CS Wright			<b>Telephone No.</b> 373-3994			<b>Project Coordinator</b> TRENT, SJ		<b>Price Code</b> 7N <b>Data Turnaround</b> <b>45 Days</b>											
<b>Project Designation</b> ModuTank - Annual Sampling of Purgewater		<b>Sampling Location</b> Purgewater Storage and Treatment Facility			H1845 (7314)			<b>SAF No.</b> F02-009		<b>Air Quality</b> <input type="checkbox"/>											
<b>Ice Chest No.</b> SEE OSPC		<b>Field Logbook No.</b> HNF-N-314 1		<b>COA</b> 117546ES10		<b>Method of Shipment</b> Federal Express      SDG H1845															
<b>Shipped To</b> EBERLINE SERVICES (Formerly TMA)		<b>Offsite Property No.</b> H020226			7072202		<b>Bill of Lading/Air Bill No.</b> SEE OSPC														
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b>  **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. <b>Special Handling and/or Storage</b>				<b>Preservation</b>		Cool 4C		Cool 4C		HNO3 to pH <2		None		HNO3 to pH <2		HNO3 to pH <2		HNO3 to pH <2			
				<b>Type of Container</b>		aGs*		aG		aG		aG		P		P		P		P	
				<b>No. of Container(s)</b>		3		2		4		1		1		1		2		1	
				<b>Volume</b>		20mL		1000mL		1000mL		500mL		1000mL		1000mL		1000mL		1000mL	
				<b>SAMPLE ANALYSIS</b>		VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)		Pesticides - 8081; Herbicides - 8150A		ICP Metals - 6010A (TAL); Mercury - 7420 - (CV); Isotopic Plutonium		Tritium - H3		Americium-241		Gross Alpha; Gross Beta		Strontium-89,90 - Total Sr	
<b>Sample No.</b>		<b>Matrix *</b>		<b>Sample Date</b>		<b>Sample Time</b>															
B153F8		WATER		7/25/02		0650						X/		X/		X/		X/			
B153F9		WATER		AT 7/25/02																	
B153H0		WATER		AT 7/25/02																	
B153H1		WATER		AT 7/25/02																	
B153H2		WATER		AT 7/25/02																	
<b>CHAIN OF POSSESSION</b>				<b>Sign/Print Names</b>				<b>SPECIAL INSTRUCTIONS</b>						<b>Matrix *</b>							
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time				S=Soil SE=Solid SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other					
Grey Thomas FH, Hughes Thomas				7/25/02 0710				R. Feller, R. Feller				7/25/02 0710									
R. Feller, R. Feller				7/25/02 0710				R. Feller, R. Feller				7/25/02 0710									
R. Feller, R. Feller				7/26/02 0900				R. Feller, R. Feller				7/26/02 0900									
R. Feller, R. Feller				7/26/02 0900				R. Feller, R. Feller				7/26/02 0900									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
R. Feller, R. Feller				7/26/02 0900				R. Feller, R. Feller				7/26/02 0900									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
R. Feller, R. Feller				7/26/02 0900				R. Feller, R. Feller				7/26/02 0900									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
R. Feller, R. Feller				7/27/02 1200				R. Feller, R. Feller				7/27/02 1200									
Relinquished By/Removed From				Date/Time				Received By/Stored In				Date/Time									
R. Feller, R. Feller				7/27/02 1200				R. Feller, R. Feller				7/27/02 1200									
<b>LABORATORY SECTION</b>		Received By		Title								Date/Time									
<b>FINAL SAMPLE DISPOSITION</b>		Disposal Method		Disposed By						Date/Time											



FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F02-009-001		Page 1 of 2					
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N      Data Turnaround 45 Days					
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		H1845 (7314)		SAF No. F02-009		Air Quality <input type="checkbox"/>					
Ice Chest No. SEE OSPC		Field Logbook No. HNF-N-314 1		COA 117546ES10		Method of Shipment Federal Express		SOG H1845					
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No.		7/25/02 AD20185		Bill of Lading/Air Bill No.		SEE R OSPC					
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. Special Handling and/or Storage COO/4°C		Preservation		COO/4°C	Cool 4C	Cool 4C	HNO3 to pH	None	HNO3 to pH	HNO3 to pH	HNO3 to pH		
		Type of Container		aGs*	aG	aG	aG	P	P	P	P		
		No. of Container(s)		3	2	1	1	1	2	1			
		Volume		20mL	1000mL	1000mL	500mL	1000mL	1000mL	1000mL	1000mL		
SAMPLE ANALYSIS		VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)	Pesticides - 8081; Herbicides - 8150A	ICP Metals - 6010A (TAL); Mercury - 7470 - (SQ); Isotopic Plutonium	Tridium - H3	Americium-241	Gross Alpha; Gross Beta	Strontium-89,90 - Total Sr			
Sample No.	Matrix *	Sample Date	Sample Time										
B453F8	WATER	7/25/02	0855										
B153F9	WATER ✓	7/25/02	0855				X✓	X✓	X✓	X			
B153H0	WATER ✓	7/25/02	0920				X✓	X✓	X✓	X✓			
B153H1	WATER ✓	7/25/02	0950				X✓	X✓	X✓	X✓			
B153H2	WATER ✓	7/25/02	1025				X✓	X✓	X✓	X✓			
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix * S=Soil SE=Sediment SO=Solid SL=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other					
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Greg Thomas Fd. 7/25/02		1200		R. Felling 7.25.02		1200							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. Felling 7.25.02		1400		Fed Ex 7.26.02		1400							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. Felling 7.25.02		1200		R. Felling 7.26.02		1200							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. Felling 7.26.02		0900		R. Felling 7.26.02		0900							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. Felling 7.26.02		0900		Fed Ex 7.27.02		0900							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
Fed Ex 7.27.02		1200		E. Maestas 7/29/02		1000							
LABORATORY SECTION		Received By		Title		Date/Time							
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By		Date/Time							

FH-Central Plateau Project		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F02-009-001		Page 2 of 2			
Collector GA Thomas, MA Baechler		Company Contact CS Wright		Telephone No. 373-3994		Project Coordinator TRENT, SJ		Price Code 7N		Data Turnaround 45 Days			
Project Designation ModuTank - Annual Sampling of Purgewater		Sampling Location Purgewater Storage and Treatment Facility		H1845 (7314)		SAF No. F02-009		Air Quality <input type="checkbox"/>					
Ice Chest No. SEEOSPL		Field Logbook No. HNF-N-314 1		COA 117546ES10		Method of Shipment Federal Express		SDA H1845					
Shipped To EBERLINE SERVICES (Formerly TMA)		Offsite Property No. A020226		107-22-02 7/20/02		Bill of Lading/Air Bill No. SEEOSPL							
<b>POSSIBLE SAMPLE HAZARDS/REMARKS</b> **Historical Data indicates that samples are less than 2000 pCi/g total activity and therefore do not require a RCF rad screen for off-site shipment. <b>Special Handling and/or Storage</b> COO/4°C				Preservation Cool 4C		Cool 4C		HNO3 to pH < 2		None			
				Type of Container aGs*		aG		aG		P		P	
				No. of Container(s) 3		2		1		1		1	
				Volume 20mL		1000mL		1000mL		1000mL		1000mL	
<b>SAMPLE ANALYSIS</b>				VOA - 8260A (TCL)		Semi-VOA - 8270A (TCL)		Pesticides - 8081; Herbicides - 8150A		ICP Metals - 8010A (TAL); Mercury - 7470 (CV); Isotopic Plutonium			
Sample No.		Matrix *		Sample Date		Sample Time							
B153H3		WATER		7/25/02		1055							
<b>CHAIN OF POSSESSION</b>						<b>SPECIAL INSTRUCTIONS</b>							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time				<b>Matrix *</b> S=Soil SB=Sediment SO=Solid Sl=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Tissue WI=Wipe L=Liquid V=Vegetation X=Other			
Greg Thomas FH, MA Baechler		7/25/02 1200		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time							
R. G. Hill		7/25/02		R. G. Hill		7/25/02							
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**EBERLINE SERVICES**

Richmond, CA Laboratory

**ANALYTICAL SERVICES GROUP****SAMPLE RECEIPT CHECKLIST**

SAMPLE RECEIPT			
Client:	Bechtel Hamford Inc.	Date/Time received	7-27-02 12:00
CoC No.	F02-009-001		
Container I.D. No.	ERC 99-062 AND ERC 96-044	Requested TAT (Days)	45
		P.O. Received	Yes [ ] No [X]
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [X]	No [ ] N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [X]	No [ ] N/A [ ]
3.	Custody seals on sample containers intact?	Yes [X]	No [ ] N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [X]	No [ ] N/A [ ]
5.	Packing material is:	Wet [ ]	Dry [X]
6.	Number of samples in shipping container:	6	
7.	Number of containers per sample:	PLS Check (Or see CoC [X])	
8.	Paperwork agrees with samples?	Yes [X]	No [ ]
9.	Samples have:	Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]	
10.	Samples are:	In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]	
11.	Describe any anomalies: _____		
13.	Was P.M. notified of any anomalies?	Yes [ ]	No [ ] Date _____
14.	Received by	E. Maestas Date: 7-29-02 Time: 10:00	

Customer Sample No.	cpm	mr/hr	wipe	Customer Sample No.	cpm	mr/hr	wipe

Ion Chamber Ser. No. \_\_\_\_\_

Calibration date \_\_\_\_\_

Alpha meter Ser. No. \_\_\_\_\_

Calibration date \_\_\_\_\_

Survey Meter Ser. No. \_\_\_\_\_

Calibration date \_\_\_\_\_